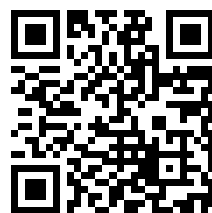


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## Twin Cities Campus















#### THE AGE OF INNOCENCE

This famous picture was painted by Sir Joshua Reynolds about 150 years ago, and now hangs in the National Gallery in London. The children's faces at the bottom are from a famous sculpture of singers in the Cathedral at Florence.

# The Book of Knowledge

## The Children's Encyclopædia

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## YOUNG AMERICA AND HER NAVAL HEROES

WHEN war broke out between the colonies and the mother country, England was mistress of the seas. Her ships went everywhere and her colonies could send their merchantmen into any port open to them under England's protection. But when they were at war with her, all this was changed. The colonies had to fight their own battles and look after their own ships at sea.

They had little difficulty to gather together a crude army. Soldiers were in the field at a moment's notice. But to get a navy able to fight the English men-of-war was not such an easy matter. It took a long time to build ships for warfaring and the expense of fitting out vessels for action was great — greater than the colonies could then afford. So when troubles between the countries began, the colonists had not one ship large and strong enough to meet any one of the British fleet.

### PRIVATEERS A SUBSTITUTE FOR WAR VESSELS

But there was a crying need for naval protection of some kind. Coast towns were open to attack by the enemy, ships carrying American troops and supplies must go unharmed from one place to another and merchantmen must be guarded in their journeys. It was a trying situation for the struggling colonists but they planned to make the best of it. So they allowed hundreds of small boats to be fitted out as privateers.

But after all, this was but a makeshift of a navy. Something better was soon needed and the colonists could close their eyes to the fact no longer. The first session of the Continental Congress had said nothing about ships, but by the time the second session met the situation was felt as serious and a Marine or Naval Commission was appointed "to consider,

inquire and report with respect to the organisation of a naval force."

### PAUL JONES, THE SCOTCHMAN, OUR FIRST GREAT SEAMAN

Fortunately for the colonists, there was one man among them, a Virginia planter, whose early life as an English seaman made him more able than any one else to advise them about the kind of ships that would give the best service in the war. This man was John Paul Jones. The Commission invited him to come to the meeting, and he went.

They met at Philadelphia. Paul Jones gave them excellent advice as to the choice of ships and men for the navy. He showed them that they could not hope to fight for the mastery of the seas with England. Only three nations had a fleet strong enough to do that, and these fleets had been the growth of centuries.

The colonists' vessels should not be too large or too small. What was most needed were frigates, rating from thirty-two to thirty-six guns. He thought a squadron of four, five or six of such ships should be constantly kept in British waters and do the kind of sea warfaring that harasses the enemy most. Last of all, one sharp encounter, with the prize taken into some French port, would attract the attention of all Europe and raise the colonists in their eyes more than any battle on land would do. "Happy, indeed, would be the American captain upon whom fortune shall confer the honour of fighting *that* battle." Congress took the suggestion and on Dec. 13, 1775, ordered thirteen frigates built.

### THE BEGINNING OF A NAVY

While at Philadelphia, the Commission asked Paul Jones' judgment about some ships which Congress had a chance

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to buy. There were about twenty of all sorts and sizes, and they lay moored a short distance from the wharf. He found four fit for service, two ships, the Alfred and the Columbus, and two brigs, the Andrea Dona and the Cabot. Congress bought them, and these four merchantmen, made useful as war-ships, formed the foundation of our American navy.

Paul Jones accepted a commission in the navy, and in the Alfred, and later in the Providence, did some brilliant work in a cruise along the coast. The enemy lost sixteen of her merchantmen to him, and for the first time the attention of the people was called to the remarkable seamanship and bravery of this man and the possibilities of his usefulness to them. One more splendid cruise along the coasts and Paul Jones left American shores to carry the glory of American seamen into British waters.

#### THE ENGLISH CALL PAUL JONES A PIRATE

He attacked the forts at Whitehaven first, then landed on the Scottish shore, and alarmed the people wherever he went. The British were exasperated at the daring of this man, whom they insisted upon calling a pirate. There is no telling what harm he would have done to the enemy if his plan to go right around the British Isles had not been changed. While crossing the Irish Channel, however, he met the British sloop of war, the Drake. After some sharp fighting he captured her and brought her with great pride into a French port. She was a vessel of greater force than the American boat and when the prize was brought in the Frenchmen could scarcely believe their own eyes.

This was not enough. He still had in mind an expedition that would give him the longed for chance for one good sharp encounter with the enemy. That would make a lasting impression. The Drake was only a small boat, so was the Ranger. His victory had amazed France, but he meant the next time to startle the world.

#### THE FRENCH KING OFFERS A SHIP

With this object in view, he did all in his power to gather together a squad-

ron of ships. France could give him little help, as she was at war with England and needed all her boats for service. Benjamin Franklin, who represented the United States in France at that time, did what he could to help. But there was little money at his disposal and Congress was not willing to spend any more then for ships. As a last resort, he appealed to the king. Louis XVI, in spite of his own pressing need of boats, gave him a large vessel. She was the Doras, part merchantman, part man-of-war and part passenger. He immediately changed her name to the Bon Homme Richard, in honour of his friend, Benjamin Franklin. You may be sure Captain Jones lost no time in fitting her for service, for three months from the time she was given to him, he had a squadron of five ships ready, and was off to sea.

They spent the summer cruising about the British coast, and this contemptible little squadron, as one Englishman called it, did much more to alarm and annoy the people than the whole French navy had been able to do. One morning a British fleet of forty sail was sighted off Flamborough Head. They were merchantmen bound for Scarborough Head under protection of two men-of-war, the Serapis, Captain Pearson, and the Countess of Scarborough, Captain Piercy. Captain Jones immediately gave chase and ordered the rest of his ships to fall in line. The British fleet crowded sail and got away but the men-of-war accepted the challenge and came up to fight. Captain Jones made out in a short time the rate and strength of the enemy, but the English captain was at first puzzled. "If the stranger's Paul Jones," he said, "there's work ahead for us."

#### THE BON HOMME RICHARD VICTORIOUS

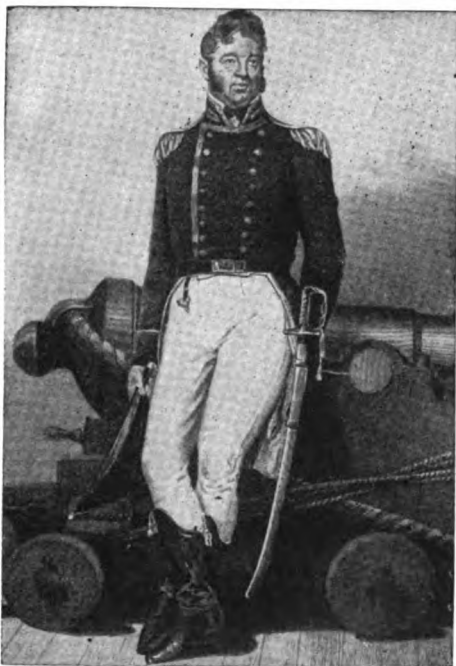
There was work ahead, indeed. Naval history does not record a more determined and terrible struggle. At one time firing on the Bon Homme Richard ceased and Captain Pearson asked if the Bon Homme Richard had surrendered. "No, I have not yet begun to fight," answered Captain Jones.

It was soon clear to the American

## NAVAL HEROES OF THE YOUNG NATION



John Paul Jones, whose real name was John Paul, was our first great commander. After the Revolution he served in the Russian Navy, and finally died in Paris. Lord Nelson, England's greatest naval officer, said that Stephen Decatur's exploit in the harbour of Tripoli was the most "daring act of the age." This brilliant officer was killed in a duel with another naval officer.



William Bainbridge served under Decatur at Tripoli, and afterward commanded the Constitution in her famous fight with the Java. He was an excellent officer in every respect. Thomas Macdonough's victory on Lake Champlain was as brilliant as any of the war, but the Americans had become accustomed to success by the time it occurred, and so it did not attract so much attention.

captain that his only chance of success was to board the enemy's boat, if possible, and fight it out, man to man. Skilful manœuvring brought the two boats side by side, and as the *Bon Homme Richard* grazed the *Serapis*, the fluke of one of her anchors caught fast in the mizzen chain of the *Bon Homme Richard*. Captain Jones lashed the boats quickly together and in this way made the grapple he had tried so hard to effect and Captain Pearson had tried so hard to avoid. The Americans boarded the enemy's boat and the English saw that it was all over — Captain Pearson struck his own colours. The next day the *Bon Homme Richard* sank in spite of every effort, yet she captured the ship that sunk her.

At the end of the war with England the Americans had but one ship left, the *Alliance*, and she was sold for a merchantman the next year. It was clear that the new nation meant to get on without a navy. In spite of the heroic work done upon the seas, the people thought a navy unnecessary.

They had yet to learn that, though they had freed themselves from England, they had not freed themselves from Europe. Politically independent of any nation, they were commercially independent of none.

Trouble with France came first. France was at war with England and looked to the Americans to protect the French West Indies. Washington was determined to avoid joining in the quarrel and France then attacked our ships.

#### OUR WAR WITH FRANCE

Three frigates, the *Constellation*, the *Constitution*, and the *United States*, had been built in 1794, and Congress soon had this infant navy in West Indian waters. Two sharp encounters taught the French that the little squadron had to be reckoned with. The *Constellation*, Captain Thomas Truxton, met the French frigate *L'Insurgent*, off St. Kitts, and after several hours' hard fighting compelled the French ship to haul down her flag. Just one year later, the *Constellation* silenced the frigate

*La Vengeance* in a few hours, and made her strike her colours. Both English and French seamen were amazed. The French soon came to terms.

#### THE WAR WITH TRIPOLI

The clash with France was scarcely ended before the Americans' love of peace was again sorely tried. For a long time pirates from the Barbary States had been preying upon the commerce of all the Christian nations. The countries of Europe had paid tribute to these sea robbers as a means of protection and the United States did the same. But the more the United States paid them, the more dissatisfied these pirates became. There was nothing left to do but to fight it out. War was declared and the Americans soon had a squadron in the Mediterranean under Edward Preble. Stephen Decatur, William Bainbridge and Charles Stewart, did some brilliant work. When the *Philadelphia*, Captain Bainbridge, ran upon a reef in the harbour of Tripoli, she fell into the hands of the enemy and made a fine addition to their naval force. Stephen Decatur offered to go into the harbour and destroy her. Now the *Philadelphia* lay close to the shore with a pirate crew and surrounded by hundreds of the enemy's guns. In the face of all these odds the young Decatur with seventy men reached the ship, boarded her and overpowered the crew. In a few minutes the *Philadelphia* was ablaze and Decatur with his men were on their way back, midst a storm of shot and shell.

All this time the United States restlessly held her peace with England, but trouble with her was not long to be avoided. England in her life and death struggle with France had kept many of the French ships in port, and most of the carrying trade of the world was done in American merchantmen. But English ideas of a neutral ship changed, and it placed American vessels, so to speak, between two fires. If they risked a voyage to a French port, they were likely to be seized by an English man-of-war, and if they were bound for an English port they were likely to be seized by the French.



ENGLAND STOPS AMERICAN SHIPS

The Americans were exasperated at the situation, but the feeling grew worse when England seized American vessels, when and where she chose, and carried off seamen she claimed were British subjects. No doubt England was in great need of men. Her seamen had deserted her by the thousands, and she was doing everything she could to get back her runaway sailors. But she was known to take American

THE CONSTITUTION AND THE GUERRIÈRE

The first encounter on the seas took place when the American frigate Constitution, Captain Isaac Hull, met the English frigate Guerrière a hundred miles east of Boston. The meeting was welcome on both sides, for Captain Dacres had entered on the log of a merchantman a challenge to any American frigate to meet him in a ship duel. The Guerrière opened fire but Captain Hull held back. He meant that every shot should tell.



This picture represents the famous battle between the Constitution and the Guerrière, August 19, 1812. The Constitution also took the Java, Dec. 29, 1812, the Cyane and the Levant on Feb. 20, 1815. The vessel has never been broken up, but is now in Boston harbour, where she is used as a receiving ship for naval recruits.

sailors under pretence that they were her own men. War was declared in 1812.

Brilliant as the naval victories of the Americans had been whenever they were brought to fight, the country placed its chief reliance in this war on the militia. The idea of our naval ships being able to meet those of the English seemed ridiculous, and not without reason, for we had only a few ships as against England's fleet of many hundred, and her poor opinion of our "fir-built things with a bit of striped bunting for a flag at the masthead."

Crouching until the Guerrière was within pistol-shot, he sprang up and shouted, "Now, boys, pour it into them." The Constitution fired a whole broadside. The masts of the Guerrière fell; great holes were torn in her sides and in less than thirty minutes from the time the firing began, she struck her flag to the Constitution. Not a spar was left standing and her hull was so damaged that it was hard to keep her above water. Captain Hull could not even bring his prize into port, so he blew her up and returned to Boston with his prisoners.

No less brilliant was the victory of the United States, Captain Stephen Decatur, over the Macedonian. Decatur, in the United States, was sailing eastward in the neighbourhood of the Azores, when he sighted a sail. The stranger made chase, and proved to be the English frigate Macedonian, Captain Carden. The enemy soon came abreast the United States and action began. The fighting lasted one hour and a half, when the Macedonian struck her colours, almost a total wreck.

#### THE CONSTITUTION AGAIN SUCCESSFUL

The same year the Constitution, under Captain William Bainbridge, made another splendid capture. She fell in with the Java, a ship of the same tonnage as the *Guerrière*, just off the Brazilian coast. The Constitution waited until within pistol-shot of the enemy, when the command was given. In less than two hours the Java was fairly shot to pieces.

Captain Bainbridge was obliged to blow her up and land at San Salvador without his prize. The Constitution was ready for another fight two hours after the battle, and the Americans were so carried away with enthusiasm for this ship that they proudly called her *Old Ironsides*.

The capture of the British sloop-of-war, *Peacock*, by the American boat *Hornet*, Master Commander James Lawrence, was much like the preceding victories in its results. The fire of the American was rapid and accurate. In eleven minutes from the time the firing began the *Peacock* was disabled and sank in spite of every effort to save her.

There had been a battle in the meantime between the sloops of war, the American *Wasp* and the British *Frolic*. The two vessels met off the North Carolina coast at a time when a heavy sea was running, which caused both to pitch and roll so that marksmanship had much to do with the outcome of the fight. Often the muzzles of the guns were under water. The enemy surrendered after forty-three minutes of terrible fighting. But Commander Jones lost the full satisfaction of his victory, for while the crew in the *Wasp* was

repairing damages, a British frigate came into view, recaptured what was left of the *Frolic* and took her and the *Wasp* to Bermuda.

#### WHAT THE ENGLISH THOUGHT OF AMERICAN SHIPS

Never had the English suffered such a series of defeats as the Americans inflicted upon their navy. Even the smaller vessels were victorious. The *Enterprise* took the *Boxer*. The *Essex*, under Captain David Porter, sailed around Cape Horn and captured many merchantmen. One Englishman said that there was scarcely an American ship that could not boast a victory over a British flag.

The first ship was lost when the frigate *Chesapeake* surrendered to the *Shannon*. The *Chesapeake* was at anchor in Boston harbour, where Captain James Lawrence was sent to fit her out for sea. When he arrived there he found that nearly all of her old crew had left the ship, and Captain Lawrence was forced to man the vessel with a crew of untrained, riotous men. While he was gathering them together, Captain Broke of the *Shannon* sent a challenge to the *Chesapeake* asking for a ship duel in any place that the American captain named. He accepted the challenge and met the *Shannon* at sea. After a short, fierce fight the fire of the *Shannon* proved too much for the *Chesapeake*. She was terribly shattered and Captain Lawrence was mortally wounded.

#### NAVAL BATTLES ON THE LAKES

One decisive naval battle gave the Americans command of Lake Erie and kept the enemy on their own territory. Oliver Hazard Perry, a young naval officer, was sent to build and man a fleet of war vessels on Lake Erie. We shall tell of his victory in another place.

In Lake Champlain was another American fleet of fourteen small vessels under Thomas Macdonough. This was attacked September 11, 1814, by a large British fleet under Captain Downie, but Macdonough's bravery and skill won the day. The British lost two hundred men beside prisoners, while the American loss was only a hundred and twelve. Peace was soon declared with all the honour of the war due to the navy.



## AN IRISH ROMANCE OF ADVENTURE

**C**HARLES LEVER was born in Dublin, August 31, 1806, and was educated for the medical profession at the university of that town and in Germany. He practised as a doctor in different parts of Ireland and also lived in the backwoods of North America for some time. He had thus many interesting experiences to recount when he began story-writing, and he used them to good purpose. But best of all was his rollicking good-humour, which made his romantic stories of life in Ireland and adventure abroad the most delightful reading. Between 1840, when his first story, "Harry Lorrequer," was published, and his death abroad, at Trieste, June 1, 1872, he wrote some thirty novels, of which the most popular in his own day and still the most widely read is "Charles O'Malley, the Irish Dragoon." This was his second novel, having been published in 1841. Like most of his stories, it is written in the first person, and in re-telling it here we have closely followed the original.

## CHARLES O'MALLEY

**M**y story belongs to the opening years of the nineteenth century. When a mere child I was left an orphan to the care of my worthy uncle. My father, whose extravagance well sustained the family reputation, had squandered a large and handsome property in contesting elections for his native county, and in keeping up that system of unlimited hospitality for which Ireland in general, and Galway more especially, was renowned. The only legacy he left to his brother Godfrey was a boy of four years of age.

Godfrey O'Malley, some short time previously, had lost his wife, and when this new trust was committed to him, he resolved never to re-marry, but to rear me up as his own child, and the inheritor of his estates. Every one of these was burdened with heavy debts, but to do my uncle justice, he loved me with all the affection of a warm and open heart. From my earliest years his whole anxiety was to fit me for the part of a country gentleman, as he regarded that character.

At the age of seventeen, when my story opens, I rode boldly with fox-hounds; I was about the best shot within twenty miles of O'Malley Castle; I could swim the Shannon at Holy Island; I drove a four-in-hand better than the coachman himself; and from finding a hare to hooking a salmon, my equal could not be found from Killaloe to Banagher. These were my chief



accomplishments, but the parish priest had taught me a little Latin, a little French, a little geometry, and a great deal of the life and opinions of St. Jago, who presided over a holy well in the neighbourhood, and was held in very considerable repute.

When I add to this account of myself that I was nearly six feet high, with more than a common share of activity and strength for my years, and no inconsiderable portion of good looks, I have finished my sketch, and stand before my reader.

At the age which I have named, a turning point came in my life. I was commissioned to seek for Mr. Godfrey O'Malley the political support of a distant relation, Mr. Matthew Blake, from whom my uncle had been estranged for several years, but who might, it was thought, be agreeable to meet a younger branch of the family, with whom he had never had any quarrel. At Mr. Blake's house I was introduced to Sir George Dashwood, a tall, singularly handsome military officer of about fifty, who was accompanied by his daughter. Lucy Dashwood had the sweetest eyes that ever beamed beneath a forehead of snowy whiteness, over which dark-brown and waving hair fell, less in curls than in masses of locky richness. Although very young, she seemed in the bloom of womanhood; while her gay and sprightly

manner indicated all the charm which only young girls possess, and which, tempered with perfect good taste and accompanied by beauty and no small share of talent, formed an irresistible power of attraction.

Mr. Blake's guests also included a tall, handsome man of about five-and-thirty—Captain Hammersly—who, as I was presented to him, scarcely turned his head, and gave me a mere half-nod of very doubtful interest.

#### **C** H A R L E S O' M A L L E Y F A L L S I N L O V E A N D W I S H E S H E W E R E A N I R I S H D R A G O O N

As I turned from the lovely girl, who had received me with marked courtesy, to the cold air and repelling manner of the dark-browed Captain, the blood rushed to my forehead; and I eagerly sought his eye, to return him a look of defiance and disdain, proud and contemptuous as his own. Captain Hammersly, however, never took further notice of me till after the hunt on the following day, when I led him over the very roughest part of the country, and when I broke my head and he broke his arm.

My feelings may be imagined when, on learning that I was destined to be a lawyer, Miss Dashwood expressed the opinion that she should never have thought of my being anything "so stupid."

"Why," said her father, "what would you have a man be?"

"A dragoon, to be sure, papa," said the fond girl, as she pressed her arm round his manly figure, and looked up in his face with mingled pride and affection. Her father, Sir George Dashwood, was Commander of the Forces, while Captain Hammersly was an officer in the Light Dragoons. A few days later I had occasion to leave Gurtnamorra, as the result of an

incident at dinner. In a moment of excitement, I hurled a glass at a Mr. Bodkin, who delivered himself of a sentiment which I regarded as an insult to the O'Malleys. A duel followed, in which I shot my opponent, leaving him with his friends for dead. The sensations I experienced as a result of this encounter made a lasting impression on my mind, although my opponent was a duellist and fully relied upon shooting me. It was with inexpressible relief I learned soon after that the wound was not a mortal one. Shortly afterwards Captain Hammersly called at O'Malley Castle. He told me he had just had an order to join his regiment for service in the Peninsula, which had been invaded by the French.

"I could not," he said, "leave the country without shaking hands with you. I owe you a lesson in horsemanship, and I'm only sorry that we are not to have another day together. I am sorry you are not coming with us."

"Would that I were," said I, with an earnestness that almost made my breath start.

"Then, why not?" said he.

"Unfortunately," I replied, "my uncle, who is all to me in this world, would be quite alone if I were to leave him, and I know he dreads the possibility of my suggesting such a thing."

"Very hard," said he, "but I believe you are right; something, however, may turn up yet to alter his mind, and, if so, and if you do take to dragoon-ing, don't forget, George Hammersly will be always most delighted to meet you; and

so, O'Malley, good-bye." He turned his horse's head, and was already some paces off, when he turned to my side and added in a lower tone of voice:



Charles O'Malley was a bold and dashing horseman

"I ought to mention to you that there has been much discussion on your affair at Blake's table, and only one opinion on the matter among all parties—that you acted perfectly right. Sir George Dashwood—no mean judge of such things—quite approves of your conduct, and I believe wishes you to know as much; and now, once more, good-bye."

Now, Sir George Dashwood was the opponent of my uncle at the ensuing election, but when he found how strong the feeling was against his candidature, he retired gracefully. During the excitement of the contest I saved Miss Dashwood from a terrible death, and after I had been in Dublin some time

for the purpose of pursuing my studies for the legal profession, Sir George succeeded in inducing my uncle to yield to my wishes, and secured for me a cornetcy in the 14th Light Dragoons.

A day or two later I found an opportunity of meeting Miss Dashwood, who was riding in Phoenix Park. Her astonishment at seeing me so suddenly—a college friend had, on my behalf, led her father away on some pretext—increased the confusion from which I felt myself suffering, and for some minutes I could scarcely speak.

#### OUR HERO JOINS THE DRAGOONS AND GOES OFF ON ACTIVE SERVICE

At last I plucked up courage a little, and said: "Miss Dashwood, I have looked most anxiously, for the last four days, for the moment which chance has now given me. I wished, before I parted for ever with those to whom I already owe so much, that I should at least speak my gratitude ere I said good-bye."

"But when do you think of going?"

"To-morrow; Captain Power, under whose command I am, has orders

to embark immediately for Portugal."

I thought—perhaps it was but a thought—that her cheek grew somewhat paler as I spoke. But before leaving

I managed to declare to her that my love for her would be the source and spring of every action in my life.

How strange a contrast to the dull monotony of our life at sea did the scene present which awaited us on landing at Lisbon! The whole quay was crowded with hundreds of people eagerly watching the vessel which bore from her mast the broad ensign of Britain. Dark-featured, swarthy, moustached faces, with red caps rakishly set on one side, mingled with the Saxon faces

and fair-haired natives of our own country. Men-of-war boats plied unceasingly to and fro across the tranquil river, some slender reefer in the stern-sheets; while behind him trailed the red pennon of some "tall admiral." The din and clamour of a mighty city mingled with the far-off sounds of military music; and, in the vistas of the opening streets, masses of troops might be seen, in marching order; and all betokened the near approach of war.

From Captain Power I received two packages, with instructions to deliver them—the one to Captain Hammersly from Miss Dashwood; and the other to La Senhora Inez da Ribiera, the daughter of a wealthy Portuguese don. The first package contained, though I knew it not at the time, a letter in which Miss Dashwood, in a manner as gentle as was possible, declined the hand of Captain Hammersly, who was, I then believed, my favoured rival. The other communication was a love-sick epistle from a young midshipman. Circumstances throwing me into the society



Charles declares his love to Lucy before leaving Dublin

of the Senhora, whom I greatly admired but did not love, I became, when I had delivered the package to Captain Hammersly, the object of his immediate hatred. He misunderstood my feelings for the Portuguese beauty, and I at the same time misunderstood his. Thus it was we quarrelled.

Meanwhile, at the passage of the Douro, I saved General Laborde's life, and this secured for me a lieutenancy in my regiment. The promotion being followed so soon by the quarrel, a gloom was cast over me which I had great difficulty in overcoming. While on special service some time later, a young Frenchman, who had encountered the displeasure of Napoleon when acting as a page in attendance on the Emperor, fell into my hands. I befriended him and enabled him to return to his own ranks, an act on my part which had far-reaching consequences.

#### WHAT MICKY FREE THE SERVANT DID WITH WELLINGTON'S DESPATCHES

The battle of Talavera followed, and later I was wounded in a skirmish before Ciudad Rodrigo, which made me but a spectator of the battle of the Coa. I returned to Lisbon an invalid. And here it happened that I was introduced to Miss Dashwood by the Senhora in circumstances which caused Miss Dashwood to make the same mistake as to my feelings for the Portuguese lady as Captain Hammersly had already made. At this time I knew not if Lucy Dashwood really cared for me. Now I knew, however, that if she did care for me, her own wrong impression of my feelings for the Senhora, coupled with false stories from others, had wrecked all my fondest hopes. Letters received from home through her hands confirmed me in this

view, and in my weakened state I fell into a severe illness at a moment when Sir George Dashwood had invited me to join his staff. After the battle of

Fuentes d'Onoro I was gazetted to a captaincy. I had by this time come under the direct notice of Lord Wellington, uncomfortably once through the mixing of official despatches by my servant Micky Free, who unconsciously forwarded to headquarters a nonsensical letter which he had written home about my exploits, the despatch containing the names of killed and wounded going in place of his extraordinary effusion to his sweetheart in Ireland. Happily, friendly in-

fluence saved me on this occasion from any worse consequences than the inconvenience of a temporary arrest.

The storming of Ciudad Rodrigo gave me an opportunity of displaying myself to better advantage, but I now received a letter which set forth the great need of my return to my uncle, and with my leave of absence I received the honour of being made the bearer of despatches to the Duke of York, to whom I had thus the happiness of being the first to bear the news of our great victory.

#### THE IRISH DRAGOON COMES HOME AGAIN AND LIVES THE LIFE OF A HERMIT

I did not reach O'Malley Castle before my uncle's death. The responsibilities which this event threw upon my shoulders caused me to sell my commission and to devote myself to the care of my tenantry and the improvement of the encumbered estates. I lived the life of a hermit, and denied myself all the pleasures of social intercourse. Indeed, my life seemed to have been a failure. Although, before I left Lisbon after the unhappy meeting with Miss Dashwood,



Charles O'Malley befriends a wounded French officer

I had found it possible to make my peace with her, her father had been given cause to regard me with grave disfavour. It appeared that he had made an offer to buy a part of my uncle's property. He made the offer with the best of intentions. It was received with scorn as an attempt on the part of a stranger to take advantage of my uncle's embarrassments, and a challenge was sent to him, together with an intimation from my uncle's closest friend, to the effect that in what they did they had my entire approval.

I had the gratification of seeing my estates gradually improve, and with infinite address the Mr. Blake to whom I referred in opening my story endeavoured to throw me into the company of his daughters with the object of marrying one of them to me. The youngest of them, happily unconscious of her father's wish in this connection, became attached to me. I did not see whither her feelings were carrying her, but grew to like her companionship.

When I appreciated my predicament I extricated myself as well as I could, and the news just then arriving of Napoleon's escape from St. Helena, and of the resulting operations, I once more sought service, proceeding first to Brussels, where I saw Miss Dashwood at



Wellington giving orders to Charles O'Malley

the famous ball given by the Duchess of Richmond. Being captured by the French at the battle of Quatre Bras, I was enabled, through the agency of a second encounter with my former acquaintance the ex-page of the Emperor, to save the life of Lucy's father. My friend the ex-page had arranged a clever plan of escape by securing me a French uniform, and when telling me of the scheme he was overheard by an elderly prisoner, who had been captured with despatches upon him which would likely have led to his being executed as a spy. The prisoner begged that I would take a letter to his daughter. But, to my amazement, I recognised him as Sir George Dashwood, and insisted on his taking advantage of the scheme for my own escape, while I remained a prisoner, to be rescued, happily, soon after the opening of the great battle of Waterloo, towards the close of which I charged the enemy by the side of Captain Hammersly, who rode to death. Happily, matters between myself and the Dashwood family being satisfactorily cleared up, I was able to present myself as suitor for the hand of Lucy. And with his consent the brave old General gave me his blessing.

The next story of Books is on page 3049.



Charles is accepted as Lucy's sweetheart at last

# ÆSOP THE SLAVE TELLING HIS FABLES



All the world has been delighted by the wonderful fables of animals and birds which Æsop told to the Greeks 2,500 years ago. We cannot learn much about Æsop, but we know that he was a slave, and that he was so deformed that for a long time no one would buy him. But at last he was bought, and his master found him so wise that he set him free. Here we see the famous story-teller delighting an audience of Greek ladies with some of his clever fables.

The photograph of Bishop Crowther on page 2909 is by Lydell Sawyer.





## SLAVES WHO BECAME FAMOUS

IN the ancient days there was no country in the world in which there were not a great number of slaves; in most countries there were more slaves than there were free people. Men owned other men, just as they owned cattle, and these slaves always had to obey their masters.

Nowadays servants are not slaves; they are as free as other people, and simply work for masters and mistresses in return for wages, and food, and other things. If they disobey orders, all that can happen to them is that they are dismissed and go away to another master. They cannot be punished, because they are free people, whom the laws of the land protect. But in the days when there were slaves, the laws of the land did not protect them against their owners. If anyone hurt or killed another man's slave, he had to pay the slave's value to the other man; but if the owner beat his own slave, or even in some countries if he killed him, he had merely damaged some of his own property, and that was the end of the matter. We have learned to know that it is very wrong to think of any of our fellow men and women as being the property of others; yet it is not fifty years since Christian folk with white skins thought it was

CONTINUED FROM 2790



BISHOP CROWTHER

quite right to own human beings with black skins.

But in the ancient days, before Christianity had come into the world at all, anyone who said that it was wrong to have slaves would only have been laughed at. At first, when one nation or tribe went to war with another, the captives, who were carried off to be slaves, were often the most valuable part of the spoils, and conquerors nearly always made slaves of the conquered people. They might settle down in the country, and let the conquered people live on as their slaves, or they might carry them off captive, or perhaps sell them in other countries.

Sometimes, too, roving bands of robbers would seize people and carry them off to be sold in this way, to be the slaves of masters in a foreign land. It must have been a terrible and cruel thing for anyone to be snatched away from his home and his friends, and forced to obey the commands of a master who might treat him as he chose. Still, masters were often kind to their slaves, especially to those who served them in their own houses. For most people would rather be kind than cruel; and, beside that, servants who were treated kindly would be both able



and willing to do their work better than those who hated their owners. So it came to pass that there were sometimes slaves who found favour with their masters, and rose from slavery to freedom and prosperity. And here we are to read about some men who, although they had been made slaves, or perhaps even born in slavery, have made a great mark in the world.

**THE LAD WHO WAS SOLD FOR A SLAVE AND BECAME A PRIME MINISTER**

First of all, there is one about whom we know already; a little lad whose father was so fond of him that all his elder brothers were jealous, and what made it worse was that he told them his dreams, in which he saw them all bowing down to him. So first they resolved to kill him, and then they thought of a better plan, since they did not quite like the idea of killing their own brother. They sold him, instead, to a band of Ishmaelites, who carried him off to the land of Egypt, and they, in turn, sold him for a slave to the captain of the king's guard, whose name was Potiphar.

Joseph was just a slave when the Ishmaelites sold him, but presently Potiphar found him so clever and useful that he set him over all his house. Yet Joseph was still a slave, so that when Potiphar was angry with him he could throw his slave into prison. But we who have read the Bible know how he was taken out of prison when Pharaoh, king of Egypt, found that he could interpret dreams that had been sent as a warning, and how he became the ruler of the land of Egypt, or, as we might say, Pharaoh's prime minister. That is the oldest story we know of a slave rising to be a ruler of nations.

**THE SLAVE-BABY THAT GREW UP TO BE THE WORLD'S GREATEST LAW-GIVER**

And then we remember how, after a time, all the children of Israel were made slaves in Egypt—not slaves of this master or the other, but slaves of the State—and were cruelly driven to do all manner of hard work. But when one little slave-baby was born, his mother hid him in an ark, or tiny boat, where the king's daughter and her maidens found him when they went to bathe. And the slave-baby was brought up as though he had been the son of the princess herself. And in after years, he was chosen to lead the children of Israel

out of Egypt to the Promised Land, and became the greatest law-giver the world has ever known. Moses was actually born a slave. There are folk who say that once upon a time there was even a slave dynasty, a family descended from slaves, who reigned in Egypt, because a nation who had been made slaves by the Egyptians, like the Israelites, got arms and rose up against the Egyptians, and set up one of themselves to be king, though after they had been kings for a long time they were overthrown again. But we know nothing definite about any such thing.

Next, we have two men who became famous in quite another way. About one of them there are a good many stories. This was a Greek, and we all know his name, for we read in this book many of the fables that were written by Æsop the slave. The story runs that, when two Greek cities were at war with each other, the little boy who was called Æsop was carried off prisoner and made a slave. But he was so clever and witty that his master had him well taught, and after many years set him free.

**HOW ÆSOP THE SLAVE REPROVED THE WISE MAN OF ATHENS**

Æsop had lived among slaves, and then he lived among people who were free, and was taken into counsel by wise men and rulers of states. In another part of this book, on page 1301, we read about one of the wisest of the Greeks, who was called Solon, and how he visited Cræsus, the king of Lydia. Well, they say that Æsop was at the court of Cræsus just at that time, and that he reproved the wise Solon for lack of courtesy to so great a king as Cræsus.

So we may see how important a man the slave must have become. And there are two other stories about him, which cannot both be true. One says that he was ugly and deformed, which made it all the more notable that one who was a slave and deformed, too, should have had such pleasant and kindly fancies as we see in his fables. The other story says that a statue was set up in his honour, and it seems hardly likely that the Greeks would ever have thought that they were doing honour to a man whose shape was ugly and contemptible, by setting up a statue of him; so, after all, it may be that life was not doubly hard

for poor Æsop; for being a slave was quite hardship enough to have taken all the fun out of most men's lives.

Among the Greeks and Romans it was quite a common thing for slaves who served in their master's houses to earn enough money to buy their freedom. Sometimes they continued in the service of the same master as "freed-men," and had slaves of their own. The cruel Emperor Nero, the first who persecuted the Christians, had a freed-man called Epaphroditus, and Epaphroditus had a slave who is always called Epictetus.

thoughts that had come to him; and then became a famous philosopher and teacher. And although, like the great Greek philosopher Socrates, he wrote no books, one of his pupils, who is called Arrian, wrote down what Epictetus had taught him. The wisest of the Romans, like the great and noble Emperor Marcus Aurelius, accounted the slave Epictetus as their master in wisdom; so that, until they learned that the truths of Christianity are higher and deeper than anything that was understood even by the wisest of the pagans,



Joseph's wonderful story in the Bible has fascinated us all. The hatred of his brothers, how they sold him to Arab slave dealers, his adventures as a slave in Egypt, his interpretation of Pharaoh's dream, and his elevation to be prime minister of the kingdom, as we see him here, all form one of the most romantic stories in history.

This picture is reproduced by permission of Sir Lawrence Alma-Tadema, the artist.

Though Epaphroditus had once been a slave himself, he was not a kind master, and Epictetus had a great deal to bear, and in his slavery he learnt to feel that, though the body may be in bondage, the soul is free, and that bodily pain and suffering are of no account as compared with the freedom of the soul. For he may always be happy who acts righteously because it is his will and desire to act righteously. And when, after a time, Epictetus got his own freedom from slavery, he taught other men to understand the wise

there was none who helped them more to know the wisdom of righteousness than Epictetus, who had been a slave.

But even when all the Roman world had come to profess Christianity, slavery did not cease; and in the days of the great Emperor Justinian he had a slave who had been brought from Armenia, whose name was Narses. Now, Narses was a sort of cripple, so that both men and women made mock of him, as though he were hardly a man at all, and he was brought up to serve among the women. Yet Justinian

found out that he was a very shrewd and able man after all, and he gave him his freedom and set him in high office.

What was stranger still, Justinian found that Narses could give the very wisest of counsel in war, so that when the barbarian tribes called Goths had made themselves almost masters of Italy—for the Roman emperor in those days ruled not at Rome, but at Byzantium, which we now call Constantinople—and one of the greatest of all soldiers, Belisarius, had much ado to vanquish the Goths, Narses was sent to give counsel to Belisarius. And some time later, when Belisarius himself was recalled, Narses was sent to be the general of the Roman armies. So great was his skill that some account him a commander greater even than Belisarius. He smote the Goths, and won back Italy, so that it was once more for a time altogether under the sway of the Roman emperor.

#### THE SLAVES WHO MARCHED TO THE MOUNTAINS AND BEAT THE ROMAN ARMIES

So far we have talked only of slaves who won their freedom and rose to fame; and now we have the story of a slave who made a glorious fight for freedom for himself and many other slaves. For the Romans had thousands upon thousands of slaves who worked for them, not in their houses, but on their great estates, and these were slaves indeed, for whose well-being there was none to care. And there were others, captives who had been taken in war, who were kept that they might make sport for the Roman people by fighting as gladiators in the circus. Now, there was a certain Spartacus, a mountaineer from the far land of Thrace, who had been made a prisoner, and was set among the gladiators.

But Spartacus had no mind to be a slave; and he stirred up the other gladiators, who were strong men and fierce, and skilled with their weapons, to band together and fight for their freedom rather than to make sport for the Roman crowd. And, seeing that none were more skilled in arms than Spartacus, they chose him for their leader; and they rose up with the weapons that had been given them for fighting in the arena, and marched away into the mountains, from whence they made raids into the country—for we

must remember that they had all been born enemies of the hated Romans. When the Romans sent armies against them, those armies were overthrown; and in all those parts the slaves fled from their masters and joined Spartacus and his gladiators, so that Spartacus soon had a fine army behind him.

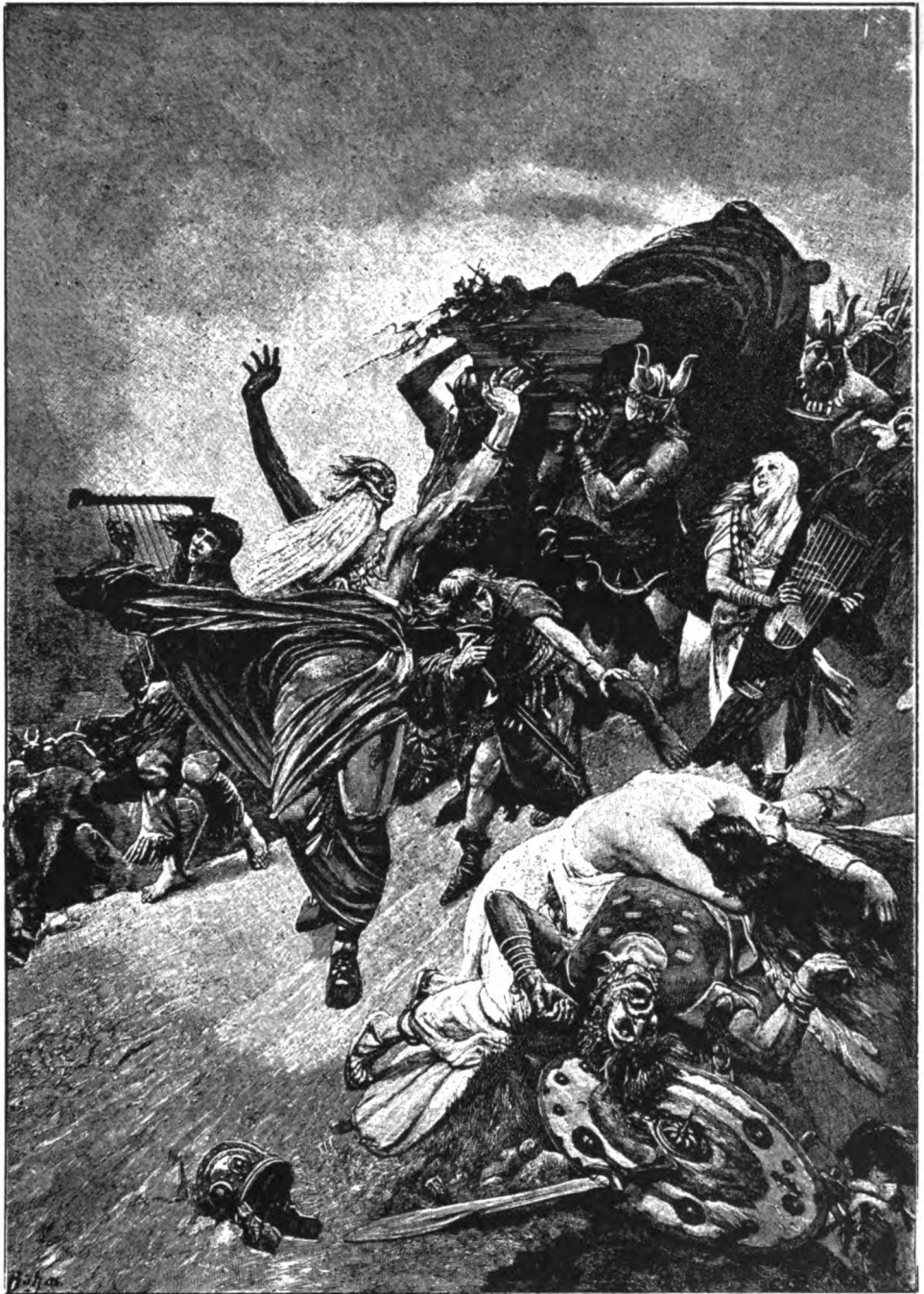
#### HOW THE GREAT SLAVE LEADER SPARTACUS WAS SLAIN IN BATTLE

Now, it was the desire of Spartacus that they should march out of Italy and go back to their own people in Germany or Thrace, or elsewhere; and when they marched through Italy they overthrew, one after another, the armies that the Romans sent against them. But then the followers of Spartacus deemed that they might altogether overthrow the might of Rome, and though Spartacus himself knew that to be but a vain imagination, he would not desert them, but abode with them, being resolved at least to make a valiant fight of it. And so at last the Romans sent against him an army so great that the slaves were overwhelmed altogether by numbers, despite their valour and the skill of their leader; and Spartacus was slain fighting, sword in hand. But as for the slaves who were not slain in the battle, they were cruelly put to death by the Romans to the number of 6,000, as slaves who had insolently rebelled against their masters, for whom there should be no mercy at all.

#### THE GREAT ARMY OF SLAVES THAT RULED EGYPT FOR 400 YEARS

We have seen how it is said that there was in Egypt an ancient dynasty of people who had been slaves and made themselves kings. Something of that kind happened in Egypt after the days of the great Sultan Saladin. For the sultans who ruled in Egypt had gathered together many slaves, white Circassians and brown Turks, making with the men regiments of soldiers, called Mamelukes, which means slaves; and the Mamelukes, under their captain, Aybeck, made themselves lords of Egypt, and one or another of the Mamelukes was sultan of Egypt for some hundreds of years thereafter. And in India there was once a great emperor, named Shahab-ud-Din, who had a Turcoman slave called Kubn-ed-Din. And when Shahab-ud-Din found that Kubn-ed-Din was a wise man and brave, he made

## A SLAVE DRIVES BACK ROME'S ENEMIES



When the Roman emperors ruled the world from Constantinople, the western part of their empire was overrun again and again by the Goths, who carried ruin wherever they went. At last, the Emperor Justinian appointed as commander of the Roman armies in Italy a feeble and crippled old man named Narses, who had once been a slave, but whom the emperor had set free. All the world laughed when they heard that the once mighty Roman legions were to be led by a decrepit old man of 75, who had formerly been a despised slave. But they did not laugh long. Narses, although old and feeble, was a man of vigorous mind, and a brilliant general, and he defeated the Goths, and drove them right out of Italy. In this picture we see the Goths retreating after their defeat by Narses at Mount Vesuvius in 553. They are carrying with them the body of their king, slain in battle.

him ruler over a great province; and after Shahab-ud-Din was dead, Kubn-ed-Din ruled the province as a kingdom of his own, and was the first ruler of the slave dynasty of Delhi.

**HOW A NEGRO BOY WAS MADE A SLAVE, AND AFTERWARDS BECAME A BISHOP**

Slavery existed not only in the ancient world, but in the modern world. It is less than a hundred years since the nations of Europe resolved to stop the work of the slave traders, who captured negroes—men and women and children—in Africa, and carried them off to be slaves in Mohammedan countries, or in America. Less than ninety years ago a party of slave traders seized all the people in an African village, among whom there was a little boy named Adjai. They were all brought down to the coast to be shipped off to become slaves; but a British warship caught the slave-ship, and set the slaves free, as shown in the picture on page 2909. They had no home to go to, so they were taken to the British colony of Sierra Leone, where they were taught Christianity. Little Adjai was baptised, and after that he was called Samuel Crowther; and he soon became so earnest a Christian that he resolved to be a missionary. And he did his work as a missionary so well that before he died, not twenty years ago, the little slave boy had become a bishop, the head of the Christian community throughout Nigeria.

There are still living to-day men who were born in slavery. Booker T. Washington is still living. He was born a slave about fifty years ago in the United States; for though the slave trade had been stopped, there were thousands and thousands of negro slaves in America, where many negroes were slaves, and the children of slaves were slaves also.

**THE GREAT JOY OF THE AMERICAN SLAVES WHEN THEY WERE SET FREE**

But because many northern people said slavery must cease, there was a great civil war in the United States.

Booker T. Washington has told us, in the story of his life, how the news of the final victory of the North was received on the estate where he, a boy at the time, and his mother and brothers and sisters were slaves. The slaves were all summoned to the

house of their owner. The family were assembled on the verandah, and there an army officer read out the glorious news that all the slaves were free.

"My mother, who was standing by my side," writes Mr. Booker Washington, "leaned over and kissed her children, while tears of joy ran down her cheeks. She explained to us what it all meant, that this was the day for which she had been so long praying, but fearing that she would never live to see."

Now that they were declared free, the slaves felt that they must go away somewhere, if only for a little time, so that they might know that it was not all a dream, that they really were free. But soon many of them returned to the plantations to work for wages, for the masters whom they had served as slaves.

**THE SLAVE BOY WHO BECAME A BRILLIANT SCHOLAR & HEAD OF A FAMOUS SCHOOL**

Booker Washington had no father, but his stepfather was living, hundreds of miles away, and the whole family set out to join him. Their few possessions were carried in a little cart. Booker and his brothers and sisters tramped the whole weary way on foot. When they reached their new home, Booker was sent to school. All the scholars were asked their names, and gave Christian name and surname. Now, Booker had never had any name but Booker, but he felt that, like the rest of the boys, he must have *two* names, so without hesitation he answered, "Booker Washington," and by that name he has ever since been known.

His schooldays were few. He had to go to work in a coal-mine to help to keep the family; but after working hard all day he studied at night, and made such splendid progress that at last he was able to go to a school.

It was the Hampton Institute in Virginia to which he went, and in order to earn his fees he had to act as porter at the school, and, during the holidays, go out to work as a waiter. He proved a ready and brilliant scholar, and was appointed teacher at the Hampton Institute; and when a school for negroes was started at the town of Tuskegee, in Alabama, he was placed in charge. His skill as a teacher and his own character as a man have made it one of the most famous in the whole world.

The next Men and Women begin on 2995.

# The Child's Book of POETRY

## THE POETRY OF SHAKESPEARE

AS William Shakespeare, the greatest of all poets, wrote chiefly for the stage, his poetry taking the form of great dramatic pieces to be spoken and acted on the stage, we do not find in his works a great many short complete poems. Though he did not write for an audience of children, his plays may be enjoyed by old and young alike, and we have already read the stories of many of these beginning at page 313. Here we bring together a selection of songs from his plays, together with some passages from these which are suitable for the "Child's Book of Poetry." Ariel's song from "The Tempest" was given on page 317.

## SONGS FROM SHAKESPEARE

### THE FAIRY LIFE

From "A Midsummer Night's Dream"

OVER hill, over dale,  
Through bush, through brier,  
Over park, over pale,  
Through flood, through fire,  
I do wander everywhere,  
Swifter than the moon's sphere;  
And I serve the fairy queen,  
To dew her orbs upon the green;  
The cowslips tall her pensioners be;  
In their gold coat spots you see;  
Those be rubies, fairy favours,  
In those freckles live their savours;  
I must go seek some dewdrops here,  
And hang a pearl in every cowslip's ear.

### A WINTER SONG

From "Love's Labour's Lost"

WHEN icicles hang by the wall,  
And Dick the shepherd blows his nail,  
And Tom bears logs into the hall,  
And milk comes frozen home in pail,  
When blood is nipp'd, and ways be foul,  
Then nightly sings the staring owl,  
To-who;

Tu-wit, to-who, a merry note,  
While greasy Joan doth keel the pot.  
When all aloud the wind doth blow,  
And coughing drowns the parson's saw,  
And birds sit brooding in the snow,  
And Marian's nose looks red and raw,  
When roasted crabs hiss in the bowl,  
Then nightly sings the staring owl,

To-who;  
Tu-wit, to-who, a merry note,  
While greasy Joan doth keel (cool) the pot.

### UNDER THE GREENWOOD TREE

From "As You Like It"

UNDER the greenwood tree,  
Who loves to lie with me;  
And tune his merry note  
Unto the sweet bird's throat.  
Come hither, come hither, come hither;  
Here shall he see  
No enemy,  
But winter and rough weather.  
Who doth ambition shun,  
And loves to live i' the sun;  
Seeking the food he eats,  
And pleased with what he gets.  
Come hither, come hither, come hither;  
Here shall he see  
No enemy,  
But winter and rough weather.

CONTINUED FROM 2814



### THE WINTER WIND

From "King Lear"

BLOW, blow, thou winter  
wind,  
Thou art not so unkind  
As man's ingratitude;  
Thy tooth is not so keen,  
Because thou art not seen,  
Although thy breath be rude.  
Heigh-ho! sing heigh-ho! unto the green holly:  
Most friendship is feigning, most loving mere  
Then, heigh-ho, the holly! [olly  
This life is most jolly.  
Freeze, freeze, thou bitter sky,  
That dost not bite so nigh  
As benefits forgot;  
Though thou the waters warp,  
Thy sting is not so sharp  
As friends remembered not. [holly:  
Heigh-ho! sing heigh-ho! unto the green  
Most friendship is feigning, most loving mere  
Then, heigh-ho, the holly! [olly:  
This life is most jolly.

### A FAIRY LULLABY

From "A Midsummer Night's Dream"

YOU spotted snakes, with double tongue,  
Thorny hedgehogs, be not seen;  
Newts and blind-worms, do no wrong;  
Come not near our fairy queen.  
Weaving spiders, come not here;  
Hence, you long-legg'd spinners, hence;  
Beetles black, approach not near;  
Worm, nor snail, do no offence.  
Philomel, with melody,  
Sing in our sweet lullaby:  
Lulla, lulla, lullaby, lulla, lulla, lullaby:  
Never harm, nor spell, nor charm,  
Come our lovely lady nigh;  
So, good-night, with lullaby.

### ORPHEUS AND HIS LUTE

From "King Henry VIII."

ORPHEUS with his lute made trees,  
And the mountain-tops that freeze,  
Bow themselves when he did sing:  
To his music, plants and flowers  
Ever sprung; as sun and showers  
There had made a lasting spring.  
Everything that heard him play,  
Even the billows of the sea,  
Hung their heads, and then lay by.  
In sweet music is such art,  
Killing care and grief of heart  
Fall asleep, or, hearing, die.

## THE FALL OF CARDINAL WOLSEY

ONE of the greatest characters in the long roll of English history is Cardinal Wolsey, who was the foremost man in the kingdom during the earlier reign of King Henry VIII. He was a tyrant, unjust in many ways, but a patriot for all that; and when the king dismissed him from his high office, it is thus that Shakespeare, in the play of "King Henry VIII.," imagines him to have received the crushing blow. The Cromwell mentioned is not Oliver Cromwell, of course, as he lived later, but Wolsey's secretary.

**WOLSEY:** Farewell, a long farewell, to all my greatness!

This is the state of man; to-day he puts forth  
The tender leaves of hope; to-morrow  
blossoms,

And bears his blushing honours thick upon  
him:

The third day comes a frost, a killing frost;  
And—when he thinks, good, easy man, full  
surely

His greatness is a-ripening—nips his root.  
And then he falls, as I do. I have ventured,  
Like little wanton boys that swim on bladders,  
This many summers in a sea of glory;  
But far beyond my depth: my high-blown  
pride

At length broke under me; and now has left  
me,

Weary, and old with service, to the mercy  
Of a rude stream, that must for ever hide me.  
Vain pomp, and glory of this world, I hate ye;  
I feel my heart new opened: O, how wretched  
Is that poor man that hangs on princes'  
favours!

There is, betwixt that smile we would  
aspire to,

That sweet aspect of princes, and their ruin,  
More pangs and fears than wars or women  
have;

And when he falls, he falls like Lucifer,  
Never to hope again.

Enter CROMWELL.

Why, how now, Cromwell?

CROMWELL: I have no power to speak, sir.

**WOLSEY:** What, amazed  
At my misfortunes? Can thy spirit wonder  
A great man should decline? Nay, an you  
weep,  
I am fallen indeed.

CROMWELL: How does your Grace?

**WOLSEY:** Why, well;  
Never so truly happy, my good Cromwell.  
I know myself now; and I feel within me  
A peace above all earthly dignities,  
A still and quiet conscience. The king has  
cured me,  
I humbly thank his Grace; and from these  
shoulders,  
These ruin'd pillars, out of pity, taken  
A load would sink a navy, too much honour;  
O, 'tis a burden, Cromwell, 'tis a burden,  
Too heavy for a man that hopes for heaven.

Go, get thee from me, Cromwell;  
I am a poor fallen man, unworthy now  
To be thy lord and master: Seek the king;  
That sun, I pray, may never set! I have  
told him

What, and how true thou art: he will  
advance thee;

Some little memory of me will stir him  
(I know his noble nature), not to let  
Thy hopeful service perish too. Good  
Cromwell,

Neglect him not; make use now, and provide  
For thine own future safety.

**CROMWELL:** O, my lord,  
Must I then leave you? Must I needs forego  
So good, so noble, and so true a master?  
Bear witness, all that have not hearts of iron,  
With what a sorrow Cromwell leaves his  
lord.

The king shall have my service; but my  
prayers

For ever and ever shall be yours.

**WOLSEY:** Cromwell, I did not think to  
shed a tear

In all my miseries; but thou hast forced me,  
Out of thy honest truth, to play the woman.  
Let's dry our eyes: and thus far, hear me,  
Cromwell;

And—when I am forgotten, as I shall be;  
And sleep in dull, cold marble where no  
mention

Of me more must be heard of—say, I taught  
thee,

Say, Wolsey—that once trod the ways of  
glory,

And sounded all the depths and shoals of  
honour—

Found thee a way, out of his wreck, to rise in;  
A sure and safe one, though thy master  
miss'd it.

Mark but my fall, and that that ruin'd me.  
Cromwell, I charge thee, fling away am-  
bition:

By that sin fell the angels; how can man,  
then,

The image of his Maker, hope to win by't?  
Love thyself last: cherish those hearts that  
hate thee;

Corruption wins not more than honesty.  
Still in thy right hand carry gentle peace,  
To silence envious tongues. Be just and fear  
not.

Let all the ends thou aim'st at be thy country's,  
Thy God's, and truth's; then if thou fall'st,  
O Cromwell,

Thou fall'st a blessed martyr. Serve the  
king;

And—prythee, lead me in:  
There take an inventory of all I have,  
To the last penny; 'tis the king's: my robe,  
And my integrity to heaven, is all  
I dare now call mine own. O Cromwell,  
Cromwell,

Had I but served my God with half the zeal  
I served my king, He would not in mine age  
Have left me naked to mine enemies.



# THE GREAT SPEECH OF MARK ANTONY

THIS is one of the most famous speeches written by Shakespeare, in whose plays there are many fine speeches. It is spoken by Antony, the friend of Julius Cæsar, over the dead body of that Roman ruler after the plot to murder Cæsar had been carried out. Antony sought to regain the people to the side of Cæsar's friends. The play is called "Julius Cæsar."

**F**RIENDS, Romans, countrymen, lend me your ears ;

I come to bury Cæsar, not to praise him.  
The evil that men do lives after them ;  
The good is oft interred with their bones ;  
So let it be with Cæsar. The noble Brutus  
Hath told you Cæsar was ambitious :  
If it were so, it was a grievous fault ;  
And grievously hath Cæsar answer'd it.  
Here, under leave of Brutus, and the rest,  
(For Brutus is an honourable man ;  
So are they all, all honourable men) :  
Come I to speak in Cæsar's funeral.  
He was my friend, faithful and just to me ;  
But Brutus says he was ambitious,  
And Brutus is an honourable man.  
He hath brought many captives home to  
Rome,

Whose ransoms did the general coffers fill :  
Did this in Cæsar seem ambitious ?  
When that the poor have cried, Cæsar hath  
wept ;  
Ambition should be made of sterner stuff :

Yet Brutus says he was ambitious,  
And Brutus is an honourable man.  
You all did see, that on the Lupercal,  
I thrice presented him a kingly crown,  
Which he did thrice refuse. Was this  
ambition ?

Yet Brutus says he was ambitious ;  
And, sure, he is an honourable man.  
I speak not to disprove what Brutus spoke,  
But here I am to speak what I do know.  
You all did love him once, not without cause ;  
What cause withholds you, then, to mourn  
for him ?

O judgment, thou art fled to brutish beasts,  
And men have lost their reason ! Bear with  
me ;

My heart is in the coffin there with Cæsar,  
And I must pause, till it come back to me.

But yesterday, the word of Cæsar might  
Have stood against the world : now lies he  
there,

THE FRIEND OF THE DEAD CÆSAR PRAISING HIM TO THE ROMANS



After Julius Cæsar had been killed, the conspirators explained their action to the people. Brutus spoke and the mob was pleased. Then came Antony, the friend of Cæsar, who praised the murdered ruler and showed his body. The people now turned to Antony's side, and in this picture we see Brutus and Cassius—who wears a helmet—turning away from the angry people. The picture is by the French artist Court, photographed by Neurdein.



And none so poor to do him reverence.  
O masters, if I were disposed to stir  
Your hearts and minds to mutiny and rage,  
I should do Brutus wrong, and Cassius  
wrong,  
Who, you all know, are honourable men :  
I will not do them wrong ; I rather choose  
To wrong the dead, to wrong myself, and  
you,  
Than I will wrong such honourable men.  
But here's a parchment, with the seal of  
Cæsar,  
I found it in his closet, 'tis his will :  
Let but the commons hear this testament,  
(Which, pardon me, I do not mean to read),  
And they would go and kiss dead Cæsar's  
wounds,  
And dip their napkins in his sacred blood ;  
Yea, beg a hair of him for memory,  
And, dying, mention it within their wills,  
Bequeathing it, as a rich legacy,  
Unto their issue.

If you have tears, prepare to shed them  
now.

You all do know this mantle : I remember  
The first time ever Cæsar put it on ;  
'Twas on a summer's evening, in his tent ;  
That day he overcame the Nervii :  
Look ! In this place ran Cassius' dagger  
through :

See, what a rent the envious Casca made :  
Through this the well-beloved Brutus  
stab'd ;

And, as he pluck'd his cursed steel away,  
Mark how the blood of Cæsar follow'd it ;  
As rushing out of doors, to be resolv'd  
If Brutus so unkindly knock'd, or no ;  
For Brutus, as you know, was Cæsar's  
angel :

Judge, O you gods, how dearly Cæsar loved  
him !

This was the most unkindest cut of all :  
For when the noble Cæsar saw him stab,  
Ingratitude, more strong than traitors' arms,  
Quite vanquished him : then burst his mighty  
heart ;

And, in his mantle muffling up his face,  
Even at the base of Pompey's statue,  
Which all the while ran blood, great Cæsar  
fell.

O, what a fall was there, my countrymen !  
Then I, and you, and all of us fell down,  
Whilst bloody treason flourish'd over us.

O, now you weep ; and, I perceive, you feel  
The dint of pity : these are gracious drops.  
Kind souls, what, weep you, when you but  
behold

Our Cæsar's vesture wounded ? Look you  
here,

Here is himself, marr'd, as you see, with  
traitors.

Good friends, sweet friends, let me not stir  
you up

To such a sudden flood of mutiny.  
They that have done this deed are honour-  
able ;

What private griefs they have, alas, I know  
not,

That made them do it ; they are wise and  
honourable,

And will, no doubt, with reasons answer you.  
I come not, friends, to steal away your  
hearts ;

I am no orator, as Brutus is :  
But, as you know me all, a plain, blunt man,  
That love my friend ; and that they know full  
well

That gave me public leave to speak of him.  
For I have neither wit, nor words, nor worth,  
Action, nor utterance, nor the power of  
speech,

To stir men's blood : I only speak right on ;  
I tell you that which you yourselves do  
know ;

Show you sweet Cæsar's wounds, poor, poor  
dumb mouths,

And bid them speak for me. But were I  
Brutus,

And Brutus Antony, there were an Antony  
Would ruffle up your spirits, and put a  
tongue

In every wound of Cæsar, that should move  
The stones of Rome to rise and mutiny.

## THE SHEPHERD'S HAPPY LIFE

**I**n the play of " King Henry VI.," the king, at the battle of Towton, is supposed to utter these thoughts, and no doubt many a king in time of trouble has envied his humblest subject. Shakespeare's power is seen in thus expressing the emotions of his characters.

**O** God ! methinks it were a happy life,  
To be no better than a homely swain ;  
To sit upon a hill, as I do now,  
To carve out dials quaintly, point by point,  
Thereby to see the minutes, how they run :  
How many make the hour full complete,  
How many hours bring about the day,  
How many days will finish up the year,  
How many years a mortal man may live.  
When this is known, then to divide the  
times :

So many hours must I tend my flock ;  
So many hours must I take my rest ;  
So many hours must I contemplate ;  
So many hours must I sport myself ;  
So many days my ewes have been with  
young ;  
So many weeks ere the poor fools will yeau ;  
So many years ere I shall shear the fleece.

So minutes, hours, days, weeks, months,  
and years,  
Pass'd over to the end they were created,  
Would bring white hairs unto a quiet grave.  
Ah, what a life were this ! how sweet ! how  
lovely !

Gives not the hawthorn bush a sweeter shade  
To shepherds, looking on their silly sheep,  
Than doth a rich embroider'd canopy  
To kings that fear their subjects' treachery ?  
O, yes, it doth : a thousand-fold it doth.  
And to conclude—the shepherd's homely curds,  
His cold, thin drink out of his leather bottle,  
His wonted sleep under a fresh tree's shade ;  
All which secure and sweetly he enjoys,  
Is far beyond a prince's delicates,  
His viands sparkling in a golden cup,  
His body couched in a curious bed, [him.  
When care, mistrust, and treason wait on

# A GREAT DAY FOR ENGLAND

SHAKESPEARE'S plays are full of stirring scenes, noble deeds, and fine thoughts, though we cannot print many of these here, and not all would be understood by boys and girls. But every boy and girl loves a brave man, a fearless warrior, and Henry V. was such as Shakespeare shows him to us. In the play of "King Henry V.," the scene is the English camp at Agincourt, in France, just before the famous battle, described in Drayton's poem on page 2721. Some of Henry's generals are discussing the outlook, and the Earl of Westmoreland is wishing they had "but one ten thousand of those men in England, who do no work to-day," when the king himself comes up and says:

WHAT'S he that wishes so?

My cousin Westmoreland?—No, my fair cousin:

If we are marked to die, we are enough  
To do our country loss; and if to live,  
The fewer men, the greater share of honour.  
God's will! I pray thee, wish not one man  
more.

By Jove! I am not covetous for gold;  
Nor care I who doth feed upon my cost;  
It yearns me not, if men my garments wear;  
Such outward things dwell not in my desires;  
But, if it be a sin to covet honour,  
I am the most offending soul alive.

No, 'faith, my coz, wish not a man from  
England:

God's peace! I would not lose so great an  
honour,

As one man more, methinks, would share  
from me,

For the best hope I have. O, do not wish  
one more;

[my host]  
Rather proclaim it, Westmoreland, through  
That he who hath no stomach to this fight,  
Let him depart; his passport shall be made,  
And crowns for convoy put into his purse.  
We would not die in that man's company,  
That fears his fellowship to die with us.

This day is called the feast of Crispian:  
He that outlives this day, and comes safe  
home,

Will stand a-tiptoe when this day is named,

And rouse him at the name of Crispian.

He that shall live this day, and see old age,  
Will yearly on the vigil feast his friends,  
And say to-morrow is Saint Crispian:

Then he will strip his sleeve, and show his  
scars,

And say, these wounds I had on Crispian's  
day.

Old men forget: yet all shall be forgot.

But he'll remember, with advantages,  
What feats he did that day! Then shall our  
names,

Familiar in their mouths as household  
words—

Harry the King, Bedford and Exeter,  
Warwick and Talbot, Salisbury and Gloster,

Be in their flowing cups freshly remember'd.  
This story shall the good man teach his son;

And Crispin Crispian shall ne'er go by,  
From this day to the ending of the world,

But we in it shall be remembered;  
We few, we happy few, we band of brothers:

For he, to-day, that sheds his blood with me  
Shall be my brother; be he ne'er so vile,

This day shall gentle his condition:  
And gentlemen in England, now a-bed,

Shall think themselves accursed, they were  
not here;

And hold their manhood cheap, while any  
speaks,

That fought with us upon Saint Crispian's  
day.

## THE NOBLEST ROMAN

From "Julius Caesar"

Brutus was one of the Romans who leagued to kill  
Caesar, but Antony, Caesar's friend, is made to say  
these things of him after he is dead and defeated.

THIS was the noblest Roman of them all:

All the conspirators, save only he,  
Did that they did in envy of great Caesar;

He, only, in a general honest thought,  
And common good to all, made one of them.

His life was gentle; and the elements  
So mix'd in him, that Nature might stand up,

And say to all the world, *This was a man!*

## THE LESSON OF THE HONEY BEES

From "King Henry V."

There are many useful lessons which we may learn by  
studying the lives of animals and insects. Here is what  
the honey bees can teach us, according to Shakespeare.

So work the honey bees;

Creatures that, by a rule in Nature, teach  
The act of order to a peopled kingdom.

They have a king, and officers of sorts:  
Where some, like magistrates, correct at home;

Others, like merchants, venture trade abroad;  
Others, like soldiers, armed in their stings,

Make boot upon the summer's velvet buds;  
Which pillage they with merry march bring

To the tent-royal of their emperor; [home  
Who, busied in his majesty, surveys

The singing masons building roofs of gold;

The civil citizens kneading up the honey;

The poor mechanic porters crowding in  
Their heavy burdens at his narrow gate;

The sad-eyed justice, with his surly hum,  
Delivering o'er to executors pale

The lazy, yawning drone.

## IN PRAISE OF ENGLAND

From "Richard II."

THIS royal throne of kings, this scepter'd isle,

This earth of majesty, this seat of Mars,

This other Eden, demi-paradise;

This fortress, built by Nature for herself  
Against infection, and the hand of war;

This happy breed of men, this little world;

This precious stone set in the silver sea,  
Which serves it in the office of a wall,

Or as a moat defensive to a house,  
Against the envy of less happier lands;

This blessed plot, this earth, this realm, this  
England.

From "King John"

This England never did, nor never shall,  
Lie at the proud foot of a conqueror. . .

Come the three corners of the world in arms,  
And we shall shock them: Nought shall

make us rue  
If England to itself do rest but true.

### A FATHER'S ADVICE TO HIS SON

From "Hamlet"

Polonius, an aged courtier, thus advises his son, the manly and fearless Laertes, how to behave himself when he goes on a visit to France. See the story of the play on page 479.

**G**IVE thy thoughts no tongue,  
Nor any unproportioned thought his act.  
Be thou familiar, but by no means vulgar.  
Those friends thou hast, and their adoption tried,  
Grapple them to thy soul with hoops of steel;  
But do not dull thy palm with entertainment  
Of each new-hatched, unfledged comrade.  
Beware  
Of entrance to a quarrel; but, being in,  
Bear it, that the opposer may beware of thee.  
Give every man thine ear, but few thy voice;  
Take each man's censure, but reserve thy judgment.  
Costly thy habit as thy purse can buy,  
But not express'd in fancy; rich, not gaudy;  
For the apparel oft proclaims the man;  
And they in France, of the best rank and station,  
Are most select and generous, chief in that,  
Neither a borrower, nor a lender be;  
For loan oft loses both itself and friend;  
And borrowing dulls the edge of husbandry.  
This above all—To thine own self be true;  
And it must follow, as the night the day,  
Thou canst not then be false to any man.

### MAN'S GREATEST TREASURE

From "King Richard II."

**T**HE purest treasure mortal times afford  
Is spotless reputation; that away,  
Men are but gilded loam, or painted clay.  
A jewel in a ten-times-barr'd-up chest  
Is a bold spirit in a loyal breast.  
Mine honour is my life; both grow in one;  
Take honour from me, and my life is done;  
Then, dear my liege, mine honour let me try;  
In that I live, and for that will I die.

### THE WAYWARD DAUGHTER'S FATE

From "Two Gentlemen of Verona"

**N**O, trust me; she is peevish, sullen, froward,  
Proud, disobedient, stubborn, lacking duty;  
Neither regarding that she is my child,  
Nor fearing me as if I were her father:  
And, may I say to thee, this pride of hers,  
Upon advice, hath drawn my love from her;  
And where I thought the remnant of mine age  
Should have been cherish'd by her child-like duty,  
I now am full resolved to take a wife,  
And turn her out to who will take her in;  
Then let her beauty be her wedding dower;  
For me and my possessions she esteems not.

### A MAN'S GOOD NAME

From "Othello"

**G**OOD name in man and woman, dear my lord,  
Is the immediate jewel of their souls;  
Who steals my purse steals trash; 'tis something—nothing;  
'Twas mine, 'tis his, and has been slave to thousands;  
But he that filches from me my good name,  
Robs me of that which neither enriches him,  
And makes me poor indeed.

### THE QUALITY OF MERCY

From "The Merchant of Venice"

Portia, who speaks these words, is pleading for mercy to one she loves, a fine man, Antonio, who is under the power of a bad Jew named Shylock. See story of the play on page 316.

**T**HE quality of mercy is not strained;  
It droppeth, as the gentle rain from heaven  
Upon the place beneath; it is twice bless'd—  
It blesseth him that gives, and him that takes.  
'Tis mightiest in the mightiest; it becomes  
The thronèd monarch better than his crown;  
His sceptre shows the force of temporal power,  
The attribute to awe and majesty,  
Wherein doth sit the dread and fear of kings;  
But mercy is above this sceptred sway,  
It is enthroned in the hearts of kings,  
It is an attribute to God Himself;  
And earthly power doth then show likest God's,  
When mercy seasons justice. Therefore,  
Jew,  
Though justice be thy plea, consider this—  
That in the course of justice, none of us  
Should see salvation: we do pray for mercy;  
And that same prayer doth teach us all to render  
The deeds of mercy.

### FRIENDS AND FLATTERERS

From verses written to Music

**E**VERY one that flatters thee,  
Is no friend in misery.  
Words are easy, like the wind;  
Faithful friends are hard to find.  
Every man will be thy friend,  
Whilst thou hast wherewith to spend;  
But if store of crowns be scant,  
No man shall supply thy want.  
If that one be prodigal,  
Bountiful they will him call:  
And with such-like flattering,  
"Pity but he were a king."  
But if fortune once do frown,  
Then farewell his great renown:  
They that fawn'd on him before  
Use his company no more.  
He that is thy friend indeed,  
He will help thee in thy need,  
If thou sorrow, he will weep;  
If thou wake, he cannot sleep:  
Thus of every grief in heart  
He with thee doth bear a part.  
These are certain signs to know  
Faithful friend from flattering toe.

### THE LIGHT OF OUR VIRTUES

From "Measure for Measure"

**T**HYSELF and thy belongings  
Are not thine own so proper as to waste  
Thyself upon thy virtues, they on thee.  
Heaven doth with us as we with torches do;  
Not light them for themselves; for if our virtues  
Did not go forth of us, 'twere all alike  
As if we had them not. Spirits are not finely touched  
But to fine issues, nor Nature never lends  
The smallest scruple of her excellence;  
But, like a thrifty goddess, she determines  
Herself the glory of a creditor,  
Both thanks and use.

## THE SEVEN AGES OF MAN

WE have to remember always what kind of person Shakespeare makes the speaker of any of his famous thoughts, as the words always suit the one that speaks them. Jacques, who is made to utter these words in "As You Like It" (see page 629), was somewhat gloomy in his mood. A "pard" is a leopard, a "capon" is a tender chicken, and "sans" is the French word for "without," but is sometimes used as an English word.

ALL the world's a stage,  
And all the men and women merely players:  
They have their exits, and their entrances;  
And one man in his time plays many parts,  
His acts being seven ages. At first, the infant,  
Mewling and puking in the nurse's arms;  
And then the whining schoolboy, with his  
satchel,  
And shining morning face, creeping like snail  
Unwillingly to school; And then, the lover,  
Sighing like furnace, with a woeful ballad  
Made to his mistress' eyebrow: Then a  
soldier,  
Full of strange oaths and bearded like the pard,  
Jealous in honour, sudden and quick in  
quarrel,  
Seeking the bubble reputation

Even in the cannon's mouth; And then, the  
justice,  
In fair round belly, with good capon lined,  
With eyes severe, and beard of formal cut,  
Full of wise saws and modern instances,  
And so he plays his part: The sixth age shifts  
Into the lean and slipper'd pantaloon;  
With spectacles on nose, and pouch on side;  
His youthful hose well saved a world too wide  
For his shrunk shank; and his big manly  
voice,  
Turning again toward childish treble, pipes  
And whistles in his sound: Last scene of all,  
That ends his strange, eventful history,  
Is second childishness, and mere oblivion;  
Sans teeth, sans eyes, sans taste, sans every-  
thing.

## WISE SAYINGS FROM SHAKESPEARE

How far that little candle throws its beams!  
So shines a good deed in a naughty world.  
"Merchant of Venice"

And oftentimes, excusing of a fault  
Doth make the fault be worse by the excuse.  
"King John"

O! it is excellent  
To have a giant's strength; but it is tyrannous  
To use it like a giant.  
"Measure for Measure"

But 'tis a common proof  
That lowliness is young ambition's ladder,  
Whereto the climber—upward turns his face:  
But when he once attains the upmost round,  
He then unto the ladder turns his back,  
Looks in the clouds, scorning the base degrees  
By which he did ascend.  
"Julius Caesar"

Cowards die many times before their deaths;  
The valiant never taste of death but once.  
Of all the wonders that I yet have heard,  
It seems to me most strange, that men should  
fear;  
Seeing that death, a necessary end,  
Will come when it will come.  
"Julius Caesar"

There is a tide in the affairs of men,  
Which, taken at the flood, leads on to  
fortune;  
Omitted, all the voyage of their life  
Is bound in shallows, and in miseries.  
On such a full sea are we now afloat;  
And we must take the current when it serves,  
Or lose our ventures.  
"Julius Caesar"

How oft the sight of means to do ill deeds,  
Makes ill deeds done!  
"King John"

I dare do all that may become a man;  
Who dares do more, is none.  
"Macbeth"

To be a queen in bondage is more vile  
Than is a slave in base servility;  
For princes should be free.

"King Henry VI."

Life every man holds dear; but the brave  
man  
Holds honour far more precious dear than  
life.

"Troilus and Cressida"

To gild refined gold, to paint the lily,  
To throw a perfume on the violet,  
To smooth the ice, or add another hue  
Unto the rainbow, or with taper-light  
To seek the beauteous eye of heaven to  
garnish,  
Is wasteful, and ridiculous excess.

"King John"

If all the year were playing holidays,  
To sport would be as tedious as to work;  
But when they seldom come they wish'd for  
come,  
And nothing pleaseth but rare accidents.

"King Henry IV."

What stronger breastplate than a heart un-  
tainted!  
Thrice is he armed that hath his quarrel  
just;  
And he but naked, though lock'd up in steel,  
Whose conscience with injustice is corrupted.

"King Henry VI."

At Christmas I no more desire a rose,  
Than wish a snow in May's new-fangled  
mirth;  
But like of each thing that in season grows.

"Love's Labour's Lost"

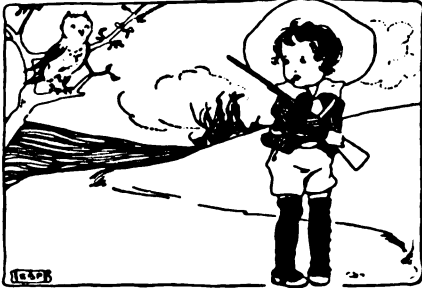
Our doubts are traitors,  
And make us lose the good we oft might win,  
By fearing to attempt.

"Measure for Measure"

A friend should bear his friend's infirmities.  
"Julius Caesar"

## LITTLE VERSES FOR VERY LITTLE PEOPLE

**T**HERE was an owl lived in an oak :  
Whiskey, whaskey, weedle !  
And all the words he ever spoke  
Were " Fiddle, faddle, feedle ! "



A gunner chanced to come that road :  
Whiskey, whaskey, weedle !  
Says he, " I'll shoot you, silly bird !  
So fiddle, faddle, feedle ! "

**O**NE, I love ; two, I love ;  
Three, I love, I say ;  
Four, I love with all my heart ;  
Five, I cast away ;  
Six, he loves ; seven, she loves ;  
Eight, both love ;  
Nine, he comes ; ten, he tarries ;  
Eleven, he courts ; and twelve, he  
marries.

**T**HERE was an old woman called  
Nothing-at-all,  
Who rejoiced in a dwelling exceedingly  
small ;  
A man stretched his mouth to its utmost  
extent,  
And down at one gulp house and old  
woman went.

**B**ow-wow, says the dog ;  
Mew-mew, says the cat ;  
Grunt, grunt, goes the hog ;  
And squeak, goes the rat.  
Chirp, chirp, says the sparrow ;  
Caw, caw, says the crow ;  
Quack, quack, says the duck ;  
And what cuckoos say, you know.  
So, with sparrows and cuckoos,  
With rats and with dogs,  
With ducks and with crows,  
With cats and with hogs,  
A fine song I have made,  
To please you, my dear ;  
And if it's well sung,  
'Twill be charming to hear.

**B**OBBY SHAFT is gone to sea,  
With silver buckles at his knee ;  
When he'll come home he'll marry me,  
Pretty Bobby Shaft !

Bobby Shaft is fat and fair,  
Combing down his yellow hair ;  
He's my love for evermore,  
Pretty Bobby Shaft !

**H**O, my kitten, a kitten,  
And ho, my kitten, my deary !  
Such a sweet pet as this  
Was neither far nor neary.

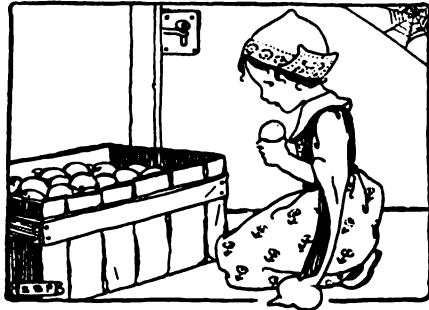
Here we go up, up, up,  
Here we go down, down, down ;  
Here we go backwards and forwards,  
And here we go round, round,  
round.

**O**H, who is so merry, so merry, heigh  
ho !  
As the light-hearted fairy, heigh ho,  
heigh ho ?

He dances and sings  
To the sound of his wings,  
With a hey, and a heigh, and a ho !  
Oh, who is so merry, so merry, heigh ho !  
As the light-hearted fairy, heigh ho,  
heigh ho ?

His nectar he sips  
From a primrose's lips,  
With a hey, and a heigh, and a ho !

**T**HE dove says "Coo, coo, what shall  
I do ?  
I can scarce maintain two."  
"Pooh, pooh !" says the wren, "I have  
got ten,  
And keep them all like gentlemen."



**D**AINTY, diddlety, my mammy's maid,  
She stole oranges, I am afraid.  
Some in her pocket, some in her sleeve,  
She stole oranges, I do believe.



## THE BREAD BY WHICH WE LIVE

**T**HERE is no other food which requires so much to be said about it as milk does, but there are several others about which we must learn. There can be no doubt that the next best food is bread, "the staff of life," as it is called. So if we have milk and bread or bread and milk, we have everything that the body requires, while neither contains any poisonous or injurious things.

There is special reason at the present time to understand the facts of bread, because the history of the part of mankind to which we belong—the history of the white races—has now reached a great crisis. What is called Western civilisation, to which we belong, is really built up on bread, as contrasted with the Eastern civilisations, which are built mainly upon rice. Wheat is vastly superior to rice as an article of diet, but the white population of the world is now rapidly outrunning its wheat supply. England long ago outgrew the wheat supply of that country, and lives on wheat from abroad, the larger part of which is American wheat. But it is possibly true that before many of the children who read this book have grown up there will be no more wheat sent from the United States, for that country will need every grain of the wheat she grows for her own use.

CONTINUED FROM 2795



Bread has already begun to get dearer, and will, no doubt, go on getting dearer.

There is no food known, whether produced by Nature or put together by men of science in the laboratory, that can replace wheat as the food of Western peoples. And therefore this wheat problem—first discussed about ten years ago by Sir William Crookes, who has since been justified in everything he said—is one of the greatest problems of the age, and it is our business here to study the facts of wheat in order that when we grow up to be men and women, and have this tremendous question to face, we may be properly prepared for the task.

When it was said in the Bible that "all flesh is grass," the words could be applied in more senses than one. The existence of the human race, as a whole, to-day depends upon grass. We read on page 2696 that for every human being there is required on the average a certain area of green leaves working for a certain number of hours a day. Now, it is the green leaves of grass that do this work for us. If we stand in the sun, we only get warm or hot and uncomfortable; we can make no starch or sugar by its power, but the grass can, and the particular grasses upon which mankind lives are called cereals. We eat not the leaves,

but the fruits or seeds of these grasses, the food matter in which has been made by the leaves.

The first practical point to notice about this cereal food is its cheapness. There is really nothing else to compare with it for this. So little of our labour is needed, after all, to produce it; the plant itself is so capable a worker. Roughly speaking, a vegetable food has only about one-fourth the cost of animal food, and bread made of wheat is the cheapest of all foods. This reckoning is made not by outside weight, but by the weight of what, in the bread, is actually food and used as food. Comparisons by mere weight are absurd, for you may be weighing water or woody fibre or bone. The nearest food to rival the bread, for cheapness, is oatmeal. The contrast between bread and meat is really astonishing. Two cents' worth of bread contains eight ounces of dry food material, but if you spent that amount on meat you would get little more than an ounce. Further, good wheat flour is cheaper than all other foods, if we reckon its proteid only, and we know how tremendously important proteid is. Bread is much dearer than flour, but even bread, so far as its proteid is concerned, is still cheaper than milk, meat, or eggs.

#### **BREAD, ONE OF THE BEST AND CHEAPEST FOODS THAT WE CAN BUY**

The difference in price between flour and bread is so great as to make it a pity, except from the baker's point of view, that people no longer bake at home nearly so much as they used to do. A recent writer has said that bread is one of the cheapest foods not only with regard to the actual weight, but also with regard to the variety of the nourishment contained; and the purchaser who expends his modest five or ten cents on a well-cooked loaf may rest assured that he could not spend his money to better advantage, except, perhaps, in the purchase of oatmeal, which is slightly cheaper. But wheat flour is cheaper than oatmeal, so that by buying flour we are spending our money to better advantage still.

Just as we find that a given kind of milk is perfectly composed for the needs of the young creature for which it was made, so we find that the wheat plant does its work perfectly for its

own needs. This is to say that the wheat grain consists partly of the germ of the young plant and of material supplied for it to live upon. This material is, indeed, almost an exception to the rule that milk is the only ready-made food designed by Nature. The source of energy for the future plant constitutes the greater part of the wheat grain, and it mainly consists of starch. Thus, flour or bread contains an excess of starch in proportion to its proteid, and a deficiency of fat.

#### **THE BEST KIND OF LOAF THAT WE CAN EAT**

These facts lend further point to the deep saying "man cannot live by bread alone." As flour or bread is rather lacking in proteid and fat, we see good sound reason for our practice of eating bread with cheese or butter.

The science of bread-making is really one of national importance. It is possible to treat the wheat grain in such a fashion that practically nothing gets into the flour but the starch. This produces an extremely white loaf, much admired by those who know no better. The whitest loaf is the starchiest and the least rich in proteid. In general, we should prefer a cream-coloured loaf to a pure white one. It is the germ of the grain that is the really living part. It is in it, therefore, that we find the proteid which every living thing contains. By recent methods of bread-making, what is called "germ-bread" is produced, which means that the germ that used to be lost is saved for the flour. By eating such bread together with water, man could probably live for a long time. In any case, about four-tenths of a loaf is water, though, even so, bread is much less watery than raw meat.

#### **THE DIFFERENCE BETWEEN BROWN BREAD AND WHITE BREAD**

The covering of the wheat grain is called bran. The bran and the germ contain colouring matter, and if they are used we get a brown bread. Many people suppose that brown bread is superior, and this has been argued on scientific grounds. But, in the first place, brown bread is very much wetter, so that we are paying a good deal for water; and, in the second place, the bran, which is really woody, interferes

with the digestion of the food materials in the flour. The result is that the proteid of brown bread is not absorbed as it should be, and the bran even interferes with the absorption of other things, such as milk. This is quite contrary to what is generally believed, but that makes it all the more necessary and important for us to know it.

**WHY WE SHOULD EAT CRUSTS, AND WHY STALE BREAD IS BETTER THAN NEW**

The crust of bread is more valuable than the crumb, simply because the crumb is so largely water. It is very wasteful indeed not to eat our crusts. Quite apart from the richness of the crust in food material, there is the fact that biting it is good for the teeth. This is especially true of children's teeth, and one of the real and deep reasons why our teeth are so bad nowadays is that they were not properly exercised when they were young. As we have seen twenty times already, there is no living power or structure that will not be injured if its work is done for it. I do not know which of these two reasons for eating crusts is the more important, but when I consider how much our teeth count for in the health and happiness of our whole lives, I am inclined to think that the great value of crusts lies in the work which they give the teeth.

If we cook bread and turn it into toast or rusks, or if we make crackers, we produce a very nourishing kind of food which is also much more digestible than ordinary bread because it is much drier. When we eat the crumb of new bread, we find it difficult to digest because it can scarcely be chewed and because it is so wet. If it is very wet, it cannot suck up the juices of the mouth. Now, we have already learnt that the digestion of starch and the turning of it into sugar largely depends upon the saliva, and bread is a very starchy food. We should therefore take it stale, or in the form of toast, biscuits, or crusts. These are so dry that they soak up the saliva of our mouths if we are careful to chew them well.

**SOME OF THE GREAT QUESTIONS THAT WE HAVE TO CONSIDER ABOUT WHEAT**

If we follow these simple rules, our teeth, our stomachs, our purses, and our whole lives will profit. We should always buy bread made of "seconds" flour, not "patents." The seconds flour is richer

in proteid, but happens to be darker, and the craze for whiteness, which means starchiness, in bread leads us to think it inferior.

As we all know, wheat can be grown in Europe, but the amount that is grown is not sufficient to feed the people. Now, there is no wealth but life and what makes and serves life. If, then, any part of that continent which might be growing wheat is growing grain from which to make alcohol, or is used for the preservation of game, which is trivial as a source of national food supply, then the people are failing to make wealth where they might. Also, it is their duty not only to grow wheat where they can, but to grow it as intensely as they can. Modern study of plant life is teaching how to increase enormously the output of the cereals, partly by proper treatment of the soil, and partly by passing electricity through electric wires suspended on poles a few feet above the soil. Lastly, it is possible to grow kinds of wheat which will resist disease, such as the wheat disease called "rust"; that will produce a flour that has all the good qualities for bread-making; and it is to be hoped that a wheat may also be grown that will produce a larger number of grains on each stalk than it is possible to get now.

**HOW THE OLD WORLD LIVED ON RICE AND THE NEW WORLD LIVES ON WHEAT**

These are a few of the great questions at which many wise men are working who know the facts about the probably approaching end of the American wheat supply and about the absolute necessity of wheat for national existence.

In recent times a good many special preparations have been made from wheat. Two of them, which are largely advertised under fancy names, have malt added to them, which aids the digestion, and they can scarcely be overpraised. True wheat flour is also disguised under such names as semolina, vermicelli, and macaroni.

We have seen that wheat is the best of all the grasses upon which mankind feeds, but there are others of very great importance. There is, for instance, rice, upon which the ancient civilisations of the earth are founded. Rice is not very digestible; it contains a great deal of starch and much less proteid than wheat. It is improbable that



Western civilisation, with its great activity, could be maintained upon rice rather than wheat. It may well be that on rice there is possible only the more slowly moving life of the East. Of course, these things are not certain, nor have we the right to say that our activity and restlessness are always wise, but it is probable that the great food differences play the chief part in this matter. It is best to cook rice by steaming, and of course we should try to remedy its defect in proteid by adding eggs or cheese. This practical necessity has been discovered by the cook long ago, as we see when we look at the rice dishes of the South.

#### **B**ARLEY AND MAIZE AND CORNFLOUR, AND THEIR VALUE AS FOODS

Barley is another grass which produces food. It is much inferior to wheat, but it is said that loaves made half and half of wheat and barley meal are pleasant and good. We grow much barley in this country, not as a source of food at all, but as a source of alcohol, and we grow it where we might grow wheat.

Maize, or Indian corn, is much used in this country, and can scarcely be overpraised. It is very cheap, very nourishing, and very well absorbed. A great service was done to Ireland when maize was introduced into that country during the potato famine about sixty years ago. Our chief authority says that, "in view of these facts, and of the approaching scarcity of wheat, one cannot help a feeling of regret that maize is not more widely adopted as food amongst the working classes of all countries." Cornstarch is a food stupidly made from maize in such a way as to get practically nothing but the starch. It is, therefore, on the same level as arrowroot, which is really just starch, and is an inferior order of food altogether.

#### **W**HY OATMEAL PORRIDGE IS VERY GOOD FOR BOYS AND GIRLS

Oats are the last cereal that we need mention, but they demand special notice. We find that, when a grass grows in a cold country, it prepares for its offspring a high proportion of heat-producing material; whereas, if a grass grows in the tropics, it will be poor in such material. Thus oats, which grow in the North, contain a lot of fat; while rice is specially poor in fat, and therefore the less suitable for a northern

civilisation. The fat in oats is valuable, of course, and we have already seen that this cereal is very rich in proteid. The strength and size of the Scotsman at his best, his vigour of brain and body, and his capacity to withstand his climate, probably depend in no small degree upon the excellence of oatmeal as a food and its richness in the very substances most needed in such a climate.

Much less attention than is needed has yet been paid to the preparation of oatmeal. Only people whose digestion is very strong can deal with large quantities of the ordinary oatmeal, which contains a great deal of husk besides its fat. Some of the new "rolled oats" are much more easy to digest, but, on the other hand, they are prepared in a way which rather reduces, though not by very much, the amount of nourishment in them. The manufacturers have yet to learn how to get rid of all the husk without losing anything else. Oatmeal porridge is very well absorbed by those who can take it. The child who has porridge and milk for breakfast, and who can enjoy it, is fortunate.

#### **H**OW THE PEOPLE'S FOOD IS CHANGING IN SCOTLAND, AND THE PITY OF IT

Nothing can surpass this combination for children, and therefore the world owes more to it than we recognise. So important is this question that we ought to spare no trouble in making the porridge so that it can be taken even by children. We must devote as much labour to it as we devote to the preparation of our cup of coffee after dinner. We must find the right kind of oatmeal; we must cook it in the right way, and we must add to it what it needs to make it nice. Some people like to add sugar to porridge and milk, and we know that sugar is an excellent food; or you may add salt or jam or syrup. But somehow or other we should arrange our oatmeal so that we can take it regularly every day.

Two great changes have been going on for some years past in the large cities of Scotland, and especially in Edinburgh, Glasgow, and Dundee. In the first place, very careful inquiry has shown that the diet of the people is changing. This especially applies to the poorer classes, and is most serious, as it affects the children. They used to get porridge and milk—or, at any rate,

porridge—before they went to school. More and more, nowadays, they are getting bread and jam—a “jam-piece,” as they call it. The bread is not the best bread, but very starchy, and the jam is little more than sugar and chemical preservatives. Compared with porridge and milk, such a diet is rubbish.

**THE DESTRUCTION OF THE HIGH QUALITY OF LIFE IN THE SCOTTISH CITIES**

It is clear, then, that all science of food is nonsense, and it does not matter at all what we eat, or else this rapid, general, and extreme change in the food habits of the people must have very large consequences indeed.

Now, these same cities show us at the same time a change going on which can only be called terrible. It is doubtful whether anything so marked and quick has ever been observed anywhere else. This is a very rapid and intense damaging of the people. Properly grown on oatmeal, and under good conditions, the Scotsman is, on the average, the tallest and heaviest man in the world; the younger generations in the big Scottish cities, largely fed on starchy bread and jam, are promising to become, very soon, about the smallest race on the face of the earth. They are already dwarfed by inches. Few things more terrible anywhere are going on than this destruction of the quality of life in Edinburgh, Glasgow, and Dundee, in a land which has for so long led the world in many matters, and, best of all, in the right feeding, education, and upbringing of children, with consequences which are written upon the face of the earth from Pole to Pole and from China to Peru.

**THE SORT OF BREAKFAST A CHILD OUGHT NOT TO GO TO SCHOOL UPON**

In our study of food, and especially of the cereals, we must beware of forgetting the importance of other things. We must not suppose that the destruction of the city populations in Scotland—where nineteen children out of every twenty require a dentist and do not get him, and suffer for life in consequence—is entirely due to the change in their food. It is also due in Dundee, for instance, to matters of feeding in the first year, because the mothers are going out to look after machinery in factories, and the future life of Scotland is left to chance at home. But the contrast between oatmeal and milk and

bread and jam is one we must especially remember. Bread and jam is all very well in its way, but it is not a complete breakfast for a child to trudge to school and do his lessons upon, even if a little stale tea is taken into the bargain.

There are so many other foods to consider, like eggs and meat and fruit, and so many other things, like tea and coffee, which are not really foods, that we have not space to say much more about grass. But we must think of this great thing rightly. When we cut a piece of bread and put it into our mouth, we want to see what we are doing from the point of view of the life of the earth.

**HOW THE WHOLE STRENGTH OF OUR FOOD COMES FROM THE SUN**

We know that the whole animal world depends upon the green vegetable world, which depends upon the sun. Bread does not happen to be green. It was made *in* the green leaves of grass, but is not actually made *of* them, but of the grain they make. Thus, when we take a piece of bread, we are apt to forget that we are really eating grass, which, in its turn, is transformed sunlight, air, and soil. We are putting these things, the energy of sunlight, the carbon from the air, and the other things from the soil, into our mouths; and the whole animal world, from the little amœba of the ponds up to human poets and kings and mothers and children, lives to-day and has always lived upon grass. This is true even if we prefer a diet of nothing but raw meat and hot water, for the meat was made from grass, or even if the meat be a tiger chop, the meat upon which the tiger was fed was itself transformed grass.

In the last resort the whole animal world is therefore vegetarian, and the act of chewing a crust, or swallowing a crumb of bread, is typical, every time it is performed, of the relations that exist between animals and vegetables and the sun that gives them life.

Later on, in the Story of the Earth, we shall learn to look upon the surface of the earth as the place where green leaves make the lives of animals and men possible. The study of our neighbour, the planet Mars, will teach us how precious the green life is; and we shall understand the wisdom of planting trees again in the United States.

The next part of this is on page 3045.

## ALICE FALLING DOWN THE RABBIT-HOLE



A white rabbit with pink eyes hurried past Alice, remarking, as he drew his watch from his waistcoat pocket, "Oh dear! Oh dear! I shall be too late!" This aroused the curiosity of the little girl. It was an odd thing to see a rabbit with a waistcoat and a watch! So she ran after him, and, without thinking, pursued him into the rabbit-hole. But he kept ahead, and presently she found herself falling down a great well or pit, which seemed to go right down to the middle of the earth, and had queer cupboards and furniture all the way down. What happened when she and the rabbit got to the bottom we shall learn in good time.

# The Child's Book of STORIES

## LEWIS CARROLL'S FAMOUS STORY

AS we have already read all about Lewis Carroll on page 1472, we need say nothing about the author of "Alice's Adventures in Wonderland." We are going to read the story itself. It is not possible to print here every word of it, to tell all the adventures at full length; but we have taken the story as a whole, and where parts of the original have had to be left out, these have been re-told very briefly, so that the reader can follow the adventures of Alice from beginning to end. Excepting such passages, the story is told in the words of its author. It has been specially illustrated for us by the famous artist Mr. Harry Furniss, who was a friend of Lewis Carroll, and drew the pictures for two of his other fairy tales. As Mr. Furniss knew the author's ideas of how his stories should be illustrated, these charming pictures, drawn according to these ideas, rank high among the many illustrations of "Alice's Adventures."

## ALICE IN WONDERLAND

ALICE was beginning to get very tired of sitting by her sister on the bank, and of having nothing to do; once or twice she had peeped into the book her sister was reading, but it had no pictures or conversations in it, "and what is the use of a book," thought Alice, "without pictures or conversations?"

So she was considering in her own mind (as well as she could, for the hot day made her feel very sleepy and stupid) whether the pleasure of making a daisy-chain would be worth the trouble of getting up and picking the daisies, when suddenly a white rabbit with pink eyes ran close by her.

There was nothing so very remarkable in that; nor did Alice think it so very much out of the way to hear the Rabbit say to himself: "Oh dear! Oh dear! I shall be too late!" (when she thought it over afterwards, it occurred to her that she ought to have wondered at this, but at the time it all seemed quite natural); but when the Rabbit actually took a watch out of his waistcoat pocket, and looked at it, "Oh dear! Oh dear! I shall be too late!" said the White Rabbit, hurrying past.

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Alice started to her feet, for it flashed across her mind that she had never before seen a rabbit with either a waistcoat pocket or a watch to take out of it, and, burning with curiosity, she ran across the field after him, and was just in time to see him pop down a large rabbit-hole under the hedge.

In another moment down went Alice after him, never once considering how in the world she was to get out again.

The rabbit-hole went straight on like a tunnel for some way, and then dipped suddenly down, so suddenly that Alice had not a moment to think about stopping herself before she found herself falling down what seemed to be a very deep well.

Either the well was very deep, or she fell very slowly, for she had plenty of time as she went down to look about her, and to wonder what was going to happen next. First, she tried to look down and make out what she was coming to, but it was too dark to see anything; then she looked at the sides of the well, and noticed that they were filled with cupboards and bookshelves.



Here and there she saw maps and pictures hung upon pegs. She took down a jar from one of the shelves as she passed; it was labelled ORANGE MARMALADE, but, to her great disappointment, it was empty. She did not like to drop the jar for fear of killing somebody underneath, so managed to put it into one of the cupboards as she fell past it.

"Well," thought Alice to herself, "after such a fall as this, I shall think nothing of tumbling downstairs. How brave they'll all think me at home! Why, I wouldn't say anything about it, even if I fell off the top of the house." (Which was very likely true.)

Down, down, down. Would the fall *never* come to an end? "I wonder how many miles I've fallen by this time?" she said aloud. "I must be getting somewhere near the centre of the earth. Let me see: that would be four thousand miles down, I think—" (for, you see, Alice had learnt several things of this sort in her lessons in the school-room, and though this was not a *very* good opportunity for showing off her knowledge, and there was no one to listen to her, still it was good practice to say it over). "Yes, that's about the right distance—but then I wonder what latitude and longitude I've got to?" (Alice had not the slightest idea what latitude was, or longitude either, but she thought they were nice grand words to say.)

Presently she began again speaking to herself.

"I wonder if I shall fall right *through* the earth? How funny it'll seem to come out among the people that walk with their heads downwards! The Antipathies, I think" (she was rather glad there was no one listening this time, as it didn't sound at all the right word); "but I shall have to ask them what the name of the country is, you know. Please, ma'am, is this New Zealand or

Australia?" And she tried to curtsy as she spoke. Fancy *curtseying* as you're falling through the air! Do you think you could manage it? "And what an ignorant little girl she'll think me for asking! No, it will never do to ask; perhaps I shall see it written up somewhere."

Down, down, down. There was nothing else to do, so Alice began talking again. "Dinah'll miss me very much to-night, I should think." (Dinah was the cat.) "I hope they'll remember her saucer of milk at tea-time. Dinah, my dear, I wish you were down here with me. There are no mice in the air, I'm afraid, but you might catch a bat, and that's very like a mouse, you know. But do cats eat bats, I wonder?" And here Alice began to get rather sleepy, and went on saying to herself, in a dreamy sort of way: "Do cats eat bats? Do cats eat bats?" and sometimes, "Do bats eat cats?" for, you know, as she couldn't answer either question, it didn't much matter which way she put it. She felt that she

was dozing off, and had just begun to dream that she was walking hand in hand with Dinah, and was saying to her very earnestly: "Now, Dinah, tell me the truth, did you ever eat a bat?" when suddenly, thump! thump! down she came upon a heap of sticks and dry leaves, and the fall was over.

Alice was not a bit hurt, and she jumped up on to her feet in a moment. She looked up, but it was all dark overhead; before her was another long passage, and the White Rabbit was still in sight, hurrying down to it. There was not a moment to be lost. Away went Alice like the wind, and was just in time to hear him say, as he turned a corner: "Oh, my ears and whiskers, how late it's getting!" She was close behind him when she turned the corner, but the Rabbit was no longer to be seen. She found herself



"What a curious feeling!" said Alice. "I must be shutting up like a telescope."

"Oh, my ears and whiskers, how late it's getting!" She was close behind him when she turned the corner, but the Rabbit was no longer to be seen. She found herself

in a long, low hall, which was lit up by a row of lamps hanging from the roof.

There were doors all round the hall, but they were all locked, and when Alice had been all the way down one side and up the other, trying every door, she walked sadly down the middle, wondering how she was ever to get out again.

Suddenly she came upon a little three-legged table, all made of solid glass. There was nothing on it but a tiny golden key, and Alice's first idea was that this might belong to one of the doors of the hall; but, alas! either the locks were too large, or the key was too small, for, at any rate, it would not open any of them. However, on the second time round she came upon a low curtain she had not noticed before, and behind it was a little door about fifteen inches high. She tried the little golden key in the lock, and, to her great delight, it fitted.

Alice opened the door, and found that it led into a small passage, not much larger than a rat-hole. She knelt down and looked along the passage into the loveliest garden you ever saw. How she longed to get out of that dark hall, and wander about among those beds of bright flowers and those cool fountains, but she could not even get her head through the doorway; "and even if my head would go through," thought poor Alice, "it would be of very little use without my shoulders. Oh, how I wish I could shut up like a telescope! I think I could, if I only knew how to begin." For, you see, so many out-of-the-way things had happened lately that Alice had begun to think that very few things indeed were really impossible.

There seemed to be no use in waiting by the little door, so she went back to the table, half hoping she might find another key on it, or, at any rate, a

book of rules for shutting people up like telescopes. This time she found a little bottle on it ("which certainly was not here before," said Alice), and tied round the neck of the bottle was a paper label, with the words DRINK ME beautifully printed on it in large letters.

It was all very well to say "Drink me," but the wise little Alice was not going to do *that* in a hurry. "No, I'll look first," she said, "and see whether it's marked '*poison*' or not"; for she had read several nice little stories about children who had got burnt, and eaten up by wild beasts and other unpleasant things, all because they *would* not remember the simple rules their friends had taught them; such as, that a red-hot poker will burn you if you hold it too long; and that, if you cut your finger *very* deeply with a knife, it usually bleeds; and she had never forgotten that, if you drink much from a bottle marked "*poison*," it is almost certain to disagree with you sooner or later.

However, this bottle was *not* marked "*poison*," so Alice ventured to taste it, and, finding it very nice (it had, in fact, a sort of mixed flavour of cherry-tart, custard, pineapple, roast turkey, toffy, and hot buttered toast), she very soon finished it off.

"What a curious feeling!" said Alice. "I must be shutting up like a telescope."

And so it was, indeed; she was now only ten inches high, and her face brightened up at the thought that she was now the right size for going through the little door into that lovely garden.

. . . But, alas for poor Alice, when she got to the door she found she had forgotten the little golden key, and when she went back to the table for it she found she could not possibly reach it.



"Curiouser and curiouser!" cried Alice. "Now I'm opening out like the largest telescope that ever was. Good-bye, feet! Oh, my poor little feet!"

She could see it quite plainly through the glass, and she tried her best to climb up one of the legs of the table, but it was too slippery; and when she had tired herself out with trying, the poor little thing sat down and cried. . . .

Soon her eye fell on a little glass box that was lying under the table. She opened it, and found in it a very small cake, on which the words EAT ME were beautifully marked in currants.

"Well, I'll eat it," said Alice, "and if it makes me grow larger, I can reach the key; and if it makes me grow smaller, I can creep under the door; so either way I'll get into the garden, and I don't care which happens."

She ate a little bit, and said anxiously to herself: "Which way? Which way?" holding her hand on the top of her head to feel which way it was growing, and she was quite surprised to find that she remained the same size; to be sure, this is what generally happens when one eats cake, but Alice had got so much into the way of expecting nothing but out-of-the-way things to happen that it seemed quite dull and stupid for life to go on in the common way.

So she set to work, and very soon finished off the cake.

"Curiouser and curiouser!" cried Alice (she was so much surprised that for the moment she quite forgot how to speak good English). "Now I'm opening out like the largest telescope that ever was. Good-bye, feet!" (for when she looked down at her feet they seemed to be almost out of sight, they were getting so far off). "Oh, my poor little feet! I wonder who will put on your shoes and stockings for you now, dears? I'm sure I shan't be able. I shall be a great deal too far off to trouble myself about you; you must manage the best way you can. But I must be kind to them," thought Alice, "or perhaps they won't walk the way I want to go. Let me see; I'll give them a new pair of boots every Christmas." . . .

Just at this moment her head struck against the roof of the hall; in fact, she was now more than nine feet high, and she at once took up the little golden key and hurried off to the garden door.

Poor Alice! It was as much as she could do, lying down on one side, to look through into the garden with one eye; but to get through was more

hopeless than ever. She sat down and began to cry again.

"You ought to be ashamed of yourself," said Alice, "a great girl like you" (she might well say this), "to go on crying in this way! Stop this moment, I tell you!"

But she went on all the same, shedding gallons of tears, until there was a large pool all round her, about four inches deep and reaching half down the hall.

After a time she heard a little pattering of feet in the distance, and she hastily dried her eyes to see what was coming. It was the White Rabbit returning, splendidly dressed, with a pair of white kid gloves in one hand and a large fan in the other. He came trotting along in a great hurry, muttering to himself as he came: "Oh, the Duchess! the Duchess! Oh, won't she be savage if I've kept her waiting!"

Alice felt so desperate that she was ready to ask help of anyone; so, when the Rabbit came near her, she began, in a low, timid voice:

"If you please, sir——"

The Rabbit started violently, dropped the white kid gloves and the fan, and skurried away into the darkness as hard as he could go.

Alice took up the fan and gloves, and, as the hall was very hot, she kept fanning herself all the time she went on talking:

"Dear, dear! How queer everything is to-day! And yesterday things went on just as usual. I wonder if I've been changed in the night? Let me think: was I the same when I got up this morning? I almost think I can remember feeling a little different. But if I'm not the same, the next question is: Who in the world am I? Ah, *that's* the great puzzle!"

And she began thinking over all the children she knew, that were of the same age as herself, to see if she could have been changed for any of them.

"I'm sure I'm not Ada," she said, "for her hair goes in such long ringlets, and mine doesn't go in ringlets at all; and I'm sure I can't be Mabel, for I know all sorts of things, and she, oh, she knows such a very little! Besides, *she's* she, and *I'm* I, and—oh dear, how puzzling it all is! I'll try if I know all the things I used to know. Let me see: four times five is twelve, and four times six is thirteen, and four times



seven is—oh dear, I shall never get to twenty at that rate! However, the multiplication table don't signify; let's try geography. London is the capital of Paris, and Paris is the capital of Rome, and Rome—no, *that's* all wrong, I'm certain. I must have been changed for Mabel. I'll try and say 'How doth the little—',” And she crossed her hands on her lap as if she were saying lessons, and began to repeat it, but her voice sounded hoarse and strange, and the words did not come the same as they used to do:

“How doth the little crocodile  
Improve his shining tail,  
And pour the waters of the Nile  
On every golden scale!

“How cheerfully he seems to grin,  
How neatly spreads his claws,  
And welcomes little fishes in  
With gently smiling jaws!”

Alice was quite certain these were not the right words, and she rather fancied now that she must be Mabel, after all.

But presently, on looking down at her hands, she was surprised to see that she had put on one of the Rabbit's little white kid gloves while she was talking.

“How *can* I have done that?” she thought. “I must be growing small again.”

She got up, and went to the table to measure herself by it, and found that, as nearly as she could guess, she was now about two feet high, and was going on shrinking rapidly. She soon found out that the cause of this was the fan she was holding, and she dropped it hastily, just in time to save herself from shrinking away altogether.

“That *was* a narrow escape,” said Alice, a good deal frightened at the

sudden change, but very glad to find herself still in existence; “and now for the garden.” And she ran with all speed back to the little door; but, alas! the little door was shut again, and the little golden key was lying on the glass table as before, “and things are worse than ever,” thought the poor child, “for I never was so small as this before, never! And I declare it's too bad, that it is!”

As she said these words her foot slipped, and in another moment, splash! she was up to her chin in salt water. Her first idea was that she had somehow fallen into the sea, “and in that case I can go back by railway,” she said to herself. . . . However, she soon made out that she was in the pool of tears which she had wept when she was nine feet high.

“I wish I hadn't cried so much,” said Alice, as she swam about, trying to find her way out. “I shall be punished for it now, I suppose, by being drowned

in my own tears. That *will* be a queer thing, to be sure. However, everything is queer to-day.”

Just then she heard something splashing about in the pool a little way off, and she swam nearer to make out what it was. At first she thought it must be a walrus or hippopotamus, but then she remembered how small she was now, and she soon made out that it was only a mouse that had slipped in like herself.

“Would it be of any use, now,” thought Alice, “to speak to this mouse? Everything is so out-of-the-way down here that I should think very likely it can talk; at any rate, there's no harm in trying.” So she began: “O Mouse,



It was the White Rabbit, splendidly dressed. He came trotting along, muttering to himself: “Oh, the Duchess! the Duchess! Oh, won't she be savage if I've kept her waiting!”



do you know the way out of this pool? I am very tired of swimming about here, O Mouse." (Alice thought this must be the right way of speaking to a mouse; she had never done such a thing before, but she remembered having seen in her brother's Latin Grammar, "A mouse—of a mouse—to a mouse—a mouse—O mouse.") The Mouse looked at her rather inquisitively, and seemed to her to wink with one of its little eyes, but it said nothing.

"Perhaps it doesn't understand English," thought Alice; "I dare say it's a French mouse, come over with William the Conqueror." So she began again: "Où est ma chatte?" which was the first sentence in her French lesson book. The Mouse gave a sudden leap out of the water, and seemed to quiver all over with fright. "Oh, I beg your pardon!" cried Alice hastily, afraid that she had hurt the poor animal's feelings. "I quite forgot you don't like cats."

"Not like cats!" cried the Mouse, in a shrill, passionate voice. "Would you like cats if you were me?"

"Well, perhaps not," said Alice, in a soothing tone; "don't be angry about it. And yet I wish I could show you our cat Dinah; I think you'd take a fancy to cats if you could only see her. She is such a dear quiet thing," Alice went on, half to herself, as she swam lazily about in the pool, "and she sits purring so nicely by the fire, licking her paws and washing her face; and she is such a nice soft thing to nurse, and she's such a capital one for catching mice— Oh, I beg your pardon!" cried Alice again, for this time the Mouse was bristling all over, and she felt certain it must be really offended. "We won't talk about her any more if you'd rather not."

"We, indeed!" cried the Mouse, who was trembling down to the end of its tail. "As if I would talk on such a subject! Our family always hated cats—nasty, low, vulgar things! Don't let me hear the name again!"

"I won't, indeed!" said Alice, in a great hurry to change the subject of conversation.

"Are you—are you fond—of—of dogs?" The Mouse did not answer, so Alice went on eagerly: "There is such a nice little dog near our house I should like to show you. A little

bright-eyed terrier, you know, with oh, such long curly brown hair! And it'll fetch things when you throw them, and it'll sit up and beg for its dinner, and all sorts of things—I can't remember half of them—and it belongs to a farmer, you know, and he says it's so useful, it's worth a hundred pounds! He says it kills all the rats and— Oh dear!" cried Alice, in a sorrowful tone. "I'm afraid I've offended it again." For the Mouse was swimming away from her as hard as it could go, and making quite a commotion in the pool as it went.

So she called softly after it:

"Mouse, dear! Do come back again, and we won't talk about cats or dogs either, if you don't like them!" When the Mouse heard this, it turned round and swam slowly back to her; its face was quite pale (with passion, Alice thought), and it said in a low, trembling voice: "Let us get to the shore, and then I'll tell you my history, and you'll understand why it is I hate cats and dogs."

It was high time to go, for the pool was getting quite crowded with the birds and animals that had fallen into it; there were a duck and a dodo, a lory and an eaglet, and several other curious creatures. Alice led the way, and the whole party swam to the shore.

A very queer-looking party of dripping birds and animals now gathered on the bank of the Pool of Tears; but they were not so queer as their talk. First the Mouse, who was quite a person of authority among them, tried to dry them by telling them frightfully dry stories from history. But Alice said she was as wet as ever after she had listened to the bits of English history; so the Dodo proposed a Caucus race. They all started off when they liked, and stopped when they liked. The Dodo said everybody had won, and Alice had to give the prizes. Luckily she had some sweets, which were not wet, and there was just one for each of them, but none for herself. The party were anxious she, too, should have a prize, and as she happened to have a thimble, the Dodo commanded her to hand it to him, and then, with great ceremony, the Dodo presented it to her, saying: "We beg your acceptance of this elegant thimble," and they all cheered. Of course, Alice thought this all very absurd; but they were dry now, and

began eating their sweets. Then the Mouse began to tell Alice its history, and to explain why it hated C and D—for it was afraid to say cats and dogs. But she soon offended the mouse, first by mistaking its "long and sad tale" for a "long tail," and next by thinking it meant "knot" when it said "not," so that it went off in a huff. Then when she mentioned Dinah to the others, and told them that was the name of her cat, the birds got uneasy, and one by one the whole party gradually went off and left her all alone. Just when she was beginning to cry, she heard a pattering of little feet, and half thought it might be the Mouse coming back to finish its story.

It was the White Rabbit, trotting slowly back again, and looking anxiously

fetch me a pair of gloves and a fan. Quick, now!" And Alice was so much frightened that she ran off at once in the direction he pointed to, without trying to explain the mistake that he had made.

"He took me for his housemaid," she said to herself as she ran. "How surprised he'll be when he finds out who I am! But I'd better take him his fan and gloves—that is, if I can find them." As she said this, she came upon a neat little house, on the door of which was a bright brass plate with the name W. RABBIT engraved upon it. She went in without knocking, and hurried upstairs, in great fear lest she should meet the real Mary Ann, and be turned out of the house before she had been able to find the fan and gloves.



"Would it be of any use, now," thought Alice, "to speak to this mouse? Everything is so out-of-the-way down here that I should think very likely it can talk; at any rate, there's no harm in trying." So she began: "O Mouse, do you know the way out of this pool? I am very tired of swimming about here, O Mouse."

about as he went, as if he had lost something; and she heard him muttering to himself: "The Duchess! The Duchess! Oh, my dear paws! Oh, my fur and whiskers! She'll get me executed, as sure as ferrets are ferrets! Where *can* I have dropped them, I wonder?" Alice guessed in a moment that he was looking for the fan and the pair of white kid gloves, and she very good-naturedly began hunting about for them, but they were nowhere to be seen—everything seemed to have changed since her swim in the pool, and the great hall, with the glass table and the little door, had vanished completely.

Very soon the Rabbit noticed Alice, as she went hunting about, and called out to her in an angry tone: "Why, Mary Ann, what *are* you doing out here? Run home this moment, and

"How queer it seems," Alice said to herself, "to be going messages for a rabbit! I suppose Dinah'll be sending me on messages next."

By this time she had found her way into a tidy little room with a table in the window, and on it—as she had hoped—a fan and two or three pairs of tiny white kid gloves. She took up the fan and a pair of the gloves, and was just going to leave the room, when her eye fell upon a little bottle that stood near the looking-glass. There was no label this time with the words DRINK ME, but, nevertheless, she uncorked it and put it to her lips.

"I know *something* interesting is sure to happen," she said to herself, "whenever I eat or drink anything; so I'll just see what this bottle does. I do hope it'll make me grow large

again, for really I'm quite tired of being such a tiny little thing."

It did so, indeed, and much sooner than she had expected; before she had drunk half the bottle, she found her head pressing against the ceiling, and had to stoop to save her neck from being broken. . . . She went on growing and growing, and very soon had to kneel down on the floor; in another minute there was not even room for this, and she tried the effect of lying down with one elbow against the door, and the other arm curled round her head.

Still she went on growing, and, as a last resource, she put one arm out of the window, and one foot up the chimney, and said to herself:

"Now I can do no more, whatever happens. What *will* become of me?"

Luckily for Alice, the little magic bottle had now had its full effect, and she grew no larger; still, it was very uncomfortable, and, as there seemed to be no sort of chance of her ever getting out of the room again, no wonder she felt unhappy.

"It was much pleasanter at home," thought poor Alice, "when one wasn't always growing larger and smaller, and being ordered about by mice and rabbits. I almost wish I hadn't gone down that rabbit-hole; and yet—and yet—it's rather curious, you know, this sort of life. I do wonder what *can* have happened to me! When I used to read fairy tales, I fancied that kind of thing never happened, and now here I am in the middle of one." . . .

After a few minutes she heard a voice outside, and stopped to listen.

"Mary Ann! Mary Ann!" said the voice. "Fetch me my gloves this moment!" Then came a little pattering of feet on the stairs. Alice knew it was the Rabbit coming to look for her, and she trembled till she shook the house, quite forgetting that she was now about a thousand times as large as the Rabbit, and had no reason to be afraid of him.

Presently the Rabbit came up to the door, and tried to open it; but, as the door opened inwards, and Alice's elbow was pressed hard against it, that attempt proved a failure. Alice heard him say to himself: "Then I'll go round and get in at the window."

"*That* you won't," thought Alice, and, after waiting till she fancied she heard the Rabbit just under the window, she suddenly spread out her hand, and made a snatch in the air. She did not get hold of anything, but she heard a little shriek and a fall, and a crash of broken glass, from which she concluded that it was just possible he had fallen into a cucumber-frame, or something of the sort.

Next came an angry voice, the Rabbit's:

"Pat! Pat! Where are you?" And then a voice she had never heard before: "Sure then, I'm here. Digging for apples, yer honour."

"Digging for apples, indeed!" said the Rabbit angrily. "Here! Come and help me out of *this*!" (Sounds of more broken glass.)

"Now tell me, Pat, what's that in the window?"

"Sure, it's an arm, yer honour." (He pronounced it "arrum.")

"An arm, you goose! Who ever saw one that size? Why, it fills the whole window!"

"Sure, it does, yer honour; but it's an arm for all that."

"Well, it's got no business there, at any rate; go and take it away."

There was a long silence after this, and Alice could only hear whispers now and then, such as: "Sure, I don't like it, yer honour, at all—at all."

"Do as I tell you, you coward!"

And at last she spread out her hand again, and made another snatch in the air.

This time there were *two* little shrieks, and more sounds of broken glass.

"What a number of cucumber-frames there must be!" thought Alice. "I wonder what they'll do next? As for pulling me out of the window, I only wish they *could*. I'm sure I don't want to stay in here any longer."

She waited for some time without hearing anything more. At last came a rumbling of little cart-wheels, and the sound of a good many voices all talking together; she made out the words: "Where's the other ladder? Why, I hadn't to bring but one; Bill's got the other. Bill, fetch it here, lad. Here, put 'em up at this corner. No, tie 'em together first, they don't reach half high enough yet. Oh,

## ALICE AT THE STORY-TELLING PARTY



It was a queer-looking party of dripping birds and animals that gathered around Alice on the edge of the Pool of Tears. The Mouse tried to dry them by telling very, very dry stories from history, and Alice broke the party up at last by thoughtlessly speaking of her cat Dinah. The animals simply couldn't bear to hear of Dinah or any other cat. So one by one the whole party gradually went off and left her all alone.

they'll do well enough; don't be particular! Here, Bill, catch hold of this rope! Will the roof bear? Mind that loose slate! Oh, it's coming down! Heads, below!" (a loud crash). "Now, who did that? It was Bill, I fancy. Who's to go down the chimney? Nay, I shan't. *You* do it? *That* I won't, then! Bill's got to go down. Here, Bill, the master says you've got to go down the chimney!"

"Oh! So Bill's got to come down the chimney, has he?" said Alice to herself. "Why, they seem to put everything upon Bill. I wouldn't be in Bill's place for a good deal; this fireplace is narrow, to be sure; but I *think* I can kick a little."

She drew her foot as far down the chimney as she could, and waited till she heard a little animal (she couldn't guess of what sort it was) scratching and scrambling about in the chimney close above her; then, saying to herself, "This is Bill," she gave one sharp kick, and waited to see what would happen next.

The first thing she heard was a general chorus of "There goes Bill!" then the Rabbit's voice alone: "Catch him, you by the hedge!" Then silence, and then another confusion of voices: "Hold up his head. Brandy now. Don't choke him. How was it, old fellow? What happened to you? Tell us all about it."

Last came a little feeble squeaking voice. ("That's Bill," thought Alice.) "Well, I hardly know. No more, thank'ye; I'm better now, but I'm a deal too flustered to tell you. All I know is, something comes at me like a Jack-in-the-box, and up I goes like a sky-rocket."

"So you did, old fellow," said the voices of the others, speaking in chorus.

"We must burn the house down," said the Rabbit's voice.

And Alice called out as loud as she could: "If you do, I'll set Dinah at you."

There was dead silence instantly, and Alice thought to herself: "I wonder what they *will* do next? If they had any sense, they'd take the roof off." After a minute or two, they began moving about again, and Alice heard the Rabbit say: "A barrowful will do to begin with."

"A barrowful of *what*?" thought Alice. But she had not long to doubt, for the next moment a shower of little pebbles came rattling in at the window, and some of them hit her in the face. "I'll put a stop to this," she said to herself, and shouted out: "You'd better not do that again!" which produced another dead silence.

Alice noticed, with some surprise, that the pebbles were all turning into little cakes as they lay on the floor, and a bright idea came into her head.

"If I eat one of these cakes," she thought, "it's sure to make some change in my size; and, as it can't possibly make me larger, it must make me smaller, I suppose."

So she swallowed one of the cakes, and was delighted to find that she began shrinking directly. As soon as she was small enough to get through the door, she ran out of the house, and found quite a crowd of little animals and birds waiting outside. The poor little Lizard, Bill, was in the middle, being held up by two guinea-pigs,

who were giving it something out of a bottle. They all made a rush at Alice the moment she appeared; but she ran off as hard as she could, and soon found herself safe in a thick wood. What happened there and what the Blue Caterpillar said to her are told on page 3055.



ALICE IN THE RABBIT'S HOUSE

## THE FABLES OF ÆSOP THE SLAVE

### MERCURY AND THE WOODMAN

**I**N the olden days, when people believed in a great many different gods, a man was cutting down a tree beside a river, when by accident the axe slipped out of his hand, fell into the water, and at once sank to the bottom. As the man was very poor, and could not afford to buy another axe, he sat down and grieved bitterly over his loss.

Suddenly the god Mercury appeared to him and asked him what was the matter. When the poor man told him, he at once dived to the bottom of the river, and when he came up again, held out a golden axe and asked the man if that was the one he had lost. The honest woodman said it was not. Then Mercury dived a second time, and brought up a silver axe. This, too, the woodman refused, saying that it did not belong to him.

The third time Mercury dived he brought up the iron axe that the woodman had lost. Its owner was delighted to see it, and thanked Mercury very warmly for restoring it to him. The god was so pleased with the man's honesty in refusing the gold and silver axes that he gave both of them to him as a reward.

When the woodman told the story to his companions, one of them went off to the river's bank, and purposely dropped his axe into the water. Then he sat down on the bank and pretended to cry and lament over his loss.

The god Mercury came as before, and, diving into the river, brought up a golden axe, and asked if that was the one the man had lost. He greedily snatched at it, and said that it was, upon which, Mercury threw it back into the river, and would not even restore the axe that the man had dropped.

*Honesty is the best policy.*

### THE WOLF AND THE KID

**A**MOTHER goat, who was going out in search of food, shut up her young kid at home and warned him not to open the door to anyone till she came back.

The wolf was hiding behind a bush close by, and heard what she said. As soon as she had gone he came and knocked at the door, and then, imitating the voice of the goat, called to the kid to open the door. But the kid was looking through the keyhole, and could

see that it was not his mother; so he called out to the wolf to go away, saying that, however he might imitate the goat's voice, he looked far too much like a wolf to be trusted.

*Never trust people who pretend to be different from what they really are.*

### THE FARMER AND THE STORK

**A**FARMER set a net in his fields one day to catch the cranes and geese which came to eat the newly-sown corn. Several of these birds were caught in the net, and amongst them was a stork, who pleaded very hard for his life, telling the farmer that he was not a goose or a crane, but a poor, harmless stork; that he did not come to steal the corn, but merely came in company with the other birds.

"All this may be very true," replied the farmer, "but as I have caught you with the thieves, you must suffer the same punishment."

*If we keep company with bad people, we must expect to suffer the consequences.*

### THE STAG LOOKING INTO THE WATER

**A** STAG, drinking by the side of a pond, saw himself reflected in the water, as in a looking-glass. He stood admiring himself, and said: "Oh, what a beautiful pair of horns I have! How gracefully they hang over my forehead, and how nice they make my face look! I wish the rest of my body was as handsome; but I have such long, thin legs that I am really quite ashamed of anyone seeing them."

Just then came the noise of some huntsmen and a pack of hounds. Away darted the stag in a fright, and, bounding nimbly along on his slender legs, he soon left the men and dogs at a great distance behind him. Then he rushed into a wood to hide himself, but at the entrance his horns got entangled in some branches, and he was held fast till the hounds came and killed him.

As he was dying, he said: "Oh, how unfortunate I am! I see now that the horns of which I was so proud are the cause of my death, while the long, thin legs that I thought so ugly are the only things that could have saved me."

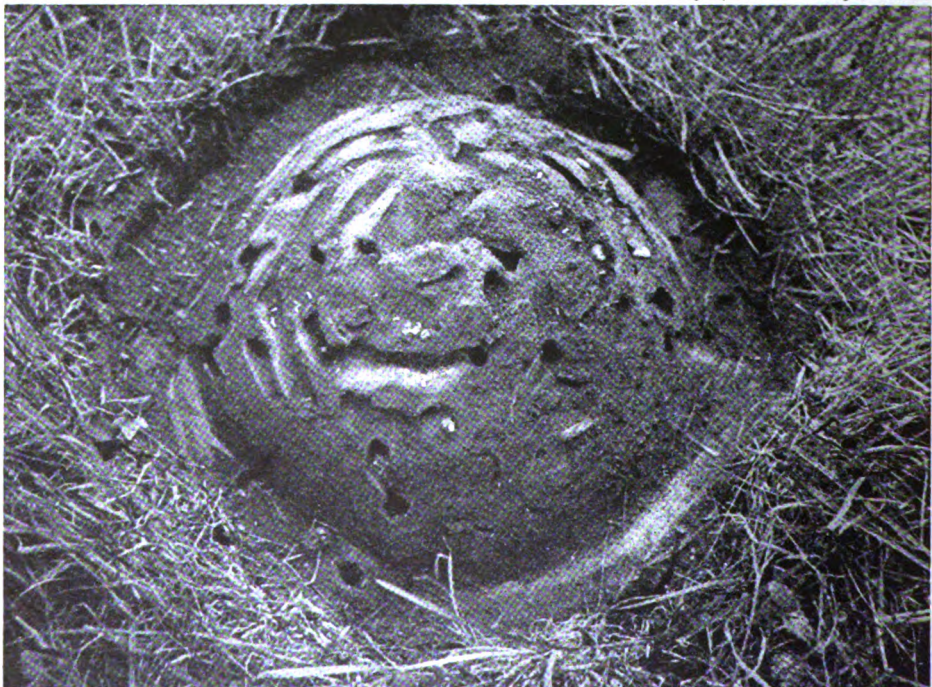
*Often the things we like most are not the best for us; while some things we dislike are useful and valuable.*



# A WONDERFUL CITY OF ANTS



When we look at an ants' nest in the garden we see only the top, and can but wonder what it is like below. This picture shows us the galleries leading down into the city. At the bottom are the baby ants, attended by workers.



Here the ants are all at home, down in the ground, so we are able to photograph the top of their city, without any of the busy workers getting in the way and blocking up the passages. Each of the holes that we see here is the end of an avenue leading into the wonderful fairy city below, and has, of course, been made entirely by the ants.

The photographs on these pages are by the Rev. S. N. Sedgwick, S. Kent, and others.





## THE LIFE OF THE ANT WORLD

THERE is a friendly quarrel between admirers of the bees and ants. Men who have devoted years to studying the life of the bee declare that their favourite is without doubt the most wonderful of creatures; while, on the other hand, the men who have for years and years pondered upon the marvels of ant life assert that *their* little friend is the greatest miracle in Nature. Those of us who read this have probably studied the story of the bee that begins on page 2815, and now we have an opportunity of comparing it with the story of the ant, and of deciding for ourselves which shall be our favourite.

As we compare the bees and their relatives, the ants, we may, in starting, give a thought to the differences and the resemblances between the two. They both have a marvellous organisation. They live together in great numbers upon a plan which seems almost human in its evidence of care and attention to details. The life of the bee appeals to most of us more than that of the ant, perhaps, because it is so beautiful and romantic. The labours of its day are passed among the flowers in the golden sunshine, and, largely through the visits of the bees which

CONTINUED FROM 2806



they supply with food, the flowers are made beautiful and fruitful.

We should, no doubt, have many flowers in the world if there were no ants, though we must remember that the ants, while not directly helping the flowers, do help indirectly, by killing insects which would injure the plants. For sheer beauty we may agree that the life-story of the bee is more charming than that of the ant. But when that is said, we have to admit that the life-story of the ant is the most extraordinary in the whole book of Nature. The ant is only a little insect, but when they consider his marvellous intelligence and the wonders of his daily life, great men place him next to man himself as the wisest of all created things. After all that we have read of the marvels of the animal world, we need very striking performances to make good such a claim as this, and now we must see how the ant justifies the generous things said of him.

There are over a thousand species of ants in the warm and temperate countries of the world—we in this country possess more than thirty kinds—therefore it will be impossible for us to go into the details of many separate species. We shall

have to confine our attention to a few of the best known. Any one of them is remarkable enough to deserve long study. In what respect, we may well ask, are they superior in intelligence to the horse, the elephant, and the dog? They are superior because they live together in cities as human beings live; because they construct wonderful dwellings; because they divide their labours among themselves as we do; because they cultivate crops, and store food in barns; because they keep cows and milk them; because they keep pets.

#### **HOW THE ANTS LOVE THEIR RELATIONS AND HATE ALL STRANGERS**

Intelligence does not always result in good, and the intelligence of the ants leads them into mischief. They have armies which engage in fierce wars, wars fought solely for the purpose of robbery; and they make slaves of ants that are weaker than themselves. Are not these feats wonderful enough to justify the placing of the ants next in order of intelligence to mankind?

The ants are like ourselves in the way that they show their feelings. The stupid among ourselves hate foreigners. So do ants; they kill a stranger ant. We love our relations, or at least we should. The ants love their relations. They have the most wonderful memory. An ant which has been taken from its nest and kept captive for months, upon returning to its nest, is immediately recognised by the others, who caress it and show the greatest joy at its return. But if a strange ant should go into the nest with the returned wanderer, the rest at once kill the stranger.

There is something more than mere memory, as we know it, in this recognition of ants by ants. Their sense of smell must help them. We know that the sense of smell helps one ant to find another for which it is looking. We know, too, that the sense of smell will enable an ant to find its way back to a place where it has once been.

#### **THE BABY ANT THAT IS BORN ABROAD AND WELCOMED TO ITS HOME**

The sense of smell, we may say, then, must help in the recognition of an ant which has been absent from its family. That makes us think that each community of ants has a scent peculiar to itself, and for this reason: If the egg of an ant be taken from the nest and

placed in another nest, there to be reared by other ants, the young ant, when at last placed in the nest from which it was first taken, is recognised and rejoiced over by the others, though they have never seen it before. There may be other colonies of ants of exactly the same sort in the neighbourhood, but the ants never make a mistake. They know the ant born from the egg laid in their nest, and welcome it with joy. If a young ant of their own species, reared from an egg laid in another nest, be put in, they at once kill it.

If they are like us in their building, in their wars, in their hatred of foreigners and their love of their own, they are like us again in their play and in their rejoicing. They wrestle and leap and play in their way as we do in ours, and when they are at their games possibly they laugh as heartily as we do, though our ears are not sensitive enough to hear the merriment which our eyes can plainly see.

#### **THE QUEEN ANT WHO BITES OFF HER WINGS AND STAYS AT HOME**

Like the bees, to whose family they belong, the ants have their queens, their drones—though we do not call the male ants drones—and their busy workers. They pass through the same stages as the bee. First there is the egg, next the larva, then the chrysalis, and finally the imago, or perfect insect.

The beginning of a colony of ants is like the beginning of a bee-hive. From their eggs are hatched the queens and males which have to go forth into the world. Therefore they have wings. The workers have no wings, and go through life on foot.

On a bright day in summer the young queens and the handsome males come out of the nest and sail away into the sunlight. It is their wedding day. For just this one day the queen has her wings. She might perhaps keep them if she chose, and fly again on other days. But Nature tells her that from this one day her place is in her own home. She never flies again. When she descends to the earth, she sets to work with jaws and feet and deliberately breaks off her wings. For the rest of her life she must walk, like the rest of the ants. When she ceases to fly, her duties in life begin. She has to found a new colony, or to lay eggs for a colony already existing.

With the poor male the case is different. His wedding day is the beginning and ending of his life in the air. His wedding and his death occur on the same day. He may be caught by a bird, or upon the ground some hideous spider may eat him. But, whatever his fate, he never tries to re-enter his old home. If worker ants of his own family see him lying on the ground, they do not help him. They know that he would be useless in the home, so they pass him by; and when the night comes, if he has lived so long, he dies. It seems sad, but it is a law of Nature, and it is no harder for the male ant to die at the close of his wedding day than for a worker ant to die when her course in life is run.

In spite of all we know about the habits of the ant, there is still some doubt as to the way in which an ant colony is formed. Lord Avebury, who is one of the greatest authorities in the world on ants, tried several times to get ants which had no queen to adopt a queen from another nest; but they attacked her, and would not have her.

#### HOW THE QUEEN ANT FORMS A COLONY AND RECEIVES HOMAGE

This suggests that if a queen is to set up her court with a numerous retinue of servants, she must begin at the end of her wedding day; that she must not attempt to settle down in one nest, and then go off to another. Apparently, what happens is this: When she descends to the earth after her first and last flight, she sees a number of worker ants, and goes off with them as her attendants to start a nest at once, or else they seize her and carry her off to their own nest. There may be two or three queen ants already in it if it is a large colony. They will not attack her as they would attack another queen which had been living since her wedding day in another nest. They can all be quite good friends together, each queen having her separate group of humble, loving attendants. When worker ants carry a young queen to their nest, they may clip off her wings themselves to prevent her going off and leaving them, and then set a guard over her until she settles down in happiness and comfort to dwell with them.

Let us suppose that *our* queen ant has by this time a home of her own, with her retinue about her. They show the greatest joy at her approach. Wherever she

appears in the colony, a very keen observer has written, she is received with obedience and respect. Gladness is shown by all around her, expressed by singular acts of joy and pleasure. The worker ants have at such times a peculiar way of skipping and leaping, and of standing upon their hind legs and prancing with the others. They frisk and frolic among themselves out of love for their queen. Some of them run over her, others dance around her, and wherever she goes she is encircled by attendants.

#### THE GREAT RED ANT THAT FIRES A VOLLEY OF POISON TO DEFEND ITSELF

We call their dwelling a nest. It is more than a nest to them. It is a city and fortress and storehouse, all built with the greatest skill. Our common yellow ant makes an elaborate underground city, with galleries and halls, floor above floor. Every place has its proper purpose; everything is built on a careful plan. Our big red wood-ant is not content with earth as his materials. He gathers great heaps of pine-needles over his nest, and constructs a dome with shutters and doors, which are open during the day, but closed, like the doors of a fortress, at night. This ant inflicts a most painful wound if we pick it up, for it has powerful jaws, and can squirt from its body a poison called formic acid. We have all heard of formic acid, which men are now able to make from various substances. It is called formic after the Latin name for the ant, *formica*, and so called because the acid was first obtained from the ant.

There are as many forms of nests as there are forms of ants. In South America certain ants build those great ant-hills which the tamanoir and other ant-eaters break open. These are wonderful structures with their halls and galleries, their granaries, nurseries, and so forth.

#### A MONSTER ANT CITY BIGGER THAN A CITY SQUARE

What we call an ants' nest may include a whole series of ant dwellings of the same species. An explorer discovered one "nest," as we say, which consisted of over 200 colonies, and extended 200 yards in all directions from its centre. As there may be from 5,000 to 500,000 ants in each nest, we may reckon up for ourselves the probable number of ants in such a settlement.

Before leaving the subject, we must remember something about other famous forms of nests. That of the brown ant may consist of thirty or forty storeys, one above another. It takes five of the storeys to measure an inch in height, and in the same space there would be twenty-four of the dividing walls.

**ANTS THAT MAKE BRICKS OF CLAY AND BUILD THEIR CITIES LIKE MEN**

The brown ants make this great building by taking moist earth or clay, and moulding it with their mouths into little sticky pellets; then building each pellet into place, like our bricklayers setting bricks. They are really brick-makers and builders, with no tools, save their jaws and feelers and legs.

They share their labour with one another. While some of the ants make the pellets ready, others scoop little hollows in the floor, and the ridges that stand up between the hollows form the foundation upon which the walls are built. When the foundations are ready, the pellets are brought and laid on top, and pressed down by the jaws and feet of the bricklaying ants. When the walls and pillars have reached the proper height, pellets are stuck into each angle and on top of the pillars. Then other pellets are stuck to the edges of those already in position. As soon as one lot is dry another lot is added. The pellets are so moist and sticky that they readily become attached to those against which they are pressed, and so in a very short time these little master-builders have built a ceiling two inches across over a chamber or gallery.

Other ants convert the dust of wood, earth, and spiders' webs into a paste, which hardens; and they make their buildings of this. Others make tiles of another substance, while the umbrella ant, or Saüba ant, cuts leaves, and with these thatches its roof, making domes two feet high and forty yards across.

**ANT SOLDIERS THAT WEAR HELMETS AND FACE THE FOE BRAVELY**

Smoke was blown into an opening in one of these Saüba colonies, and it came out from a number of other holes at least seventy yards apart. These ants are divided into five classes. There are the males and the queens, there are the ordinary workers, and then there are two special sorts of soldier ants—one lot with hard, horny

helmets, and the others having big heads, covered with stiff hair. These soldiers do no ordinary work. What, then, can be their purpose?

They attend the workers who go out to gather the leaves, and, should they be attacked by other ants, the hard-headed soldiers form a ring round them, with their heads towards the foe, and no matter how hard the enemy try, they cannot make any impression upon the thick, armoured heads of the soldier Saübas.

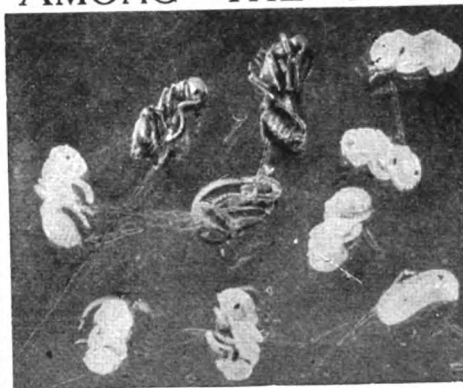
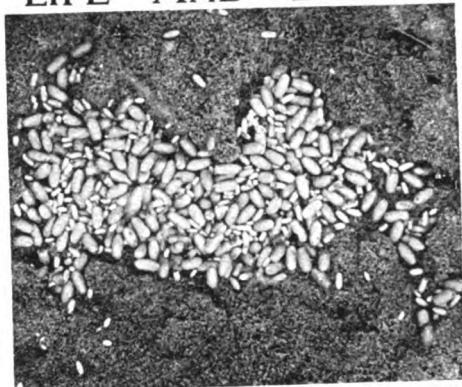
But it is the worker Saübas which are the more interesting. They climb the trees, and with their sharp jaws cut the leaves into pieces of about the size of a dime. If the tree is a high one, the workers may let the pieces which they cut drop to the ground to form a heap for the cutters to carry away when they descend. If the colony be a numerous one, other workers will be under the tree in readiness to receive the pieces as they fall, and to carry them off to the dwelling. As they go, they carry the pieces of leaf upright by their edges, and look as if they bore umbrellas or parasols to keep off the rays of the blazing sun in which they are working. That is how they get their common name.

**HOW THE ANTS STRIP FRUIT-TREES TO OBTAIN A ROOF FOR THEIR HOME**

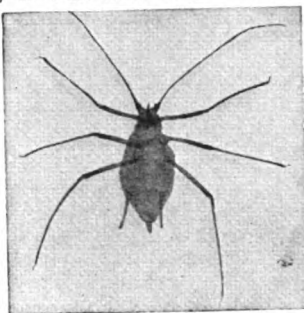
When these carriers arrive at the dwelling, other workers take the leaves from them, and carry them in for the builders to fit into their places in the dome. Soft pellets of earth are mixed with them, and they go to form a perfectly watertight roof to one of the most wonderful structures of the ant-world. It is very admirable, of course, as the work of insects, but it is terribly costly to men. The leaves that these ants prefer are generally those of fruit-trees, or of coffee, and so many do they take that they strip and kill the trees.

These feats of the ants would be remarkable if the latter could be supposed to use any tools; but, as we know, they have nothing but their jaws and feet. It is time, therefore, that we paid a moment's attention to the structure of the ant. The body is in three parts: the head, the thorax, or chest, and the abdomen—the part of the body which contains the stomach, and in which the food is digested. The head contains the eyes, and bears two pairs of jaws,

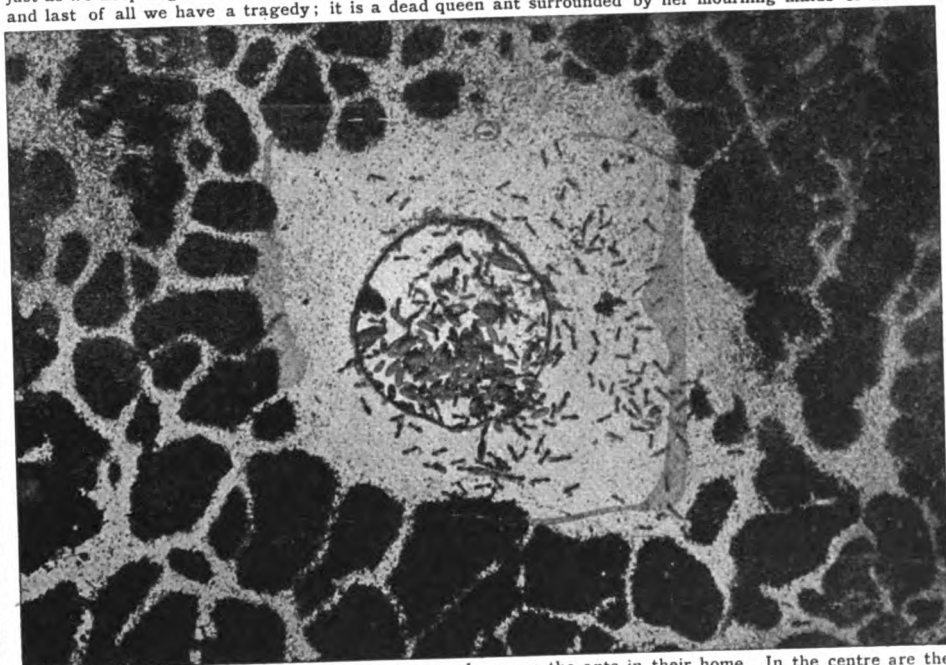
# LIFE AND DEATH AMONG THE ANTS



Men call these ants' eggs, but really each is a chry. These are the children of the red ant in the chrysalis stage. The red ant fires a volley of poison if touched.



Here are three chapters from the ant world. First we have some of the little insects that the ants keep as pets, just as we keep dogs and cats in our homes; next we have an aphid, the ant's cow, very much magnified; and last of all we have a tragedy; it is a dead queen ant surrounded by her mourning maids of honour.



Looking down into a nest which has been uncovered, we see the ants in their home. In the centre are the queen and her attendants, and also the baby ants and their nurses. The white spaces between the dark patches are the streets, or passages and tunnels, through which the ants make their way about their wonderful city.

the upper and lower lip, and also the antennæ. That is an ugly word with a diphthong at the end. It is the plural form of antenna, as larvæ is the plural form of larva, to which we shall presently come. Each antenna is very active and sensitive. It is supposed to be the organ by means of which ants "speak" to each other, by which they smell, and by which they hear. The antennæ are those little branching, horny threads in front of the head of the ant which we see constantly waving to and fro as the insect moves.

Some ants have poison stings; others have simply poison glands, and inject their poison into the wounds which they inflict with their jaws. The jaws of ants are remarkably strong. With these they can carry other ants bigger than themselves, and run away with weights which we could not lift if we were as small as ants. It is with this simple outfit that the ants work their wonders. A sluggish, weak-brained insect would be a very poor figure in the animal world with such capital, but the ant has a magnificent brain, and it is that which makes him such a king in the lower world.

#### HOW THE ANTS CARRY THE EGGS UP- STAIRS TO WARM THEM IN THE SUN

But how are the queen ant and her workers faring while we have been studying nests and their structure? The queen has begun to lay her eggs. The workers treat these with affectionate care, and their conduct shows us one of the reasons why they have so many galleries in their home. The eggs require a certain degree of heat and a certain degree of moisture. Now, if there were only one gallery in the city, it would become swamped in time of rain, and scorched by the sun in time of drought. When it rains the ants bring the eggs from the lowest gallery, if they are lying there, to one higher up; while, when the rain ceases, and the sun comes out, they carry them up to the top galleries, or even out into the open, so that they may get the full benefit of the sun.

The mother ant goes on laying eggs from time to time. The workers arrange the eggs according to their age. Those first laid are kept by themselves, while the second, third, and fourth batches are all arranged with the same care and order. The hatching of the eggs varies with the weather. It may take only

fifteen days, or it may take three times as long. When the egg is hatched, there comes forth the larva, or grub, a little white, legless thing, looking like a small grain of wheat. The one grub we call a larva; two or more we call the larvæ.

#### THE ANT GRUBS THAT SPIN ROBES OF SILK FOR THEMSELVES

Well, the larvæ, now that we know them by that name, have to be fed by the worker ants, just as the larvæ of the bee have to be fed by the worker bees. The ordinary full-grown ants eat insects, any sort of flesh-food that they can secure, vegetable matter, the nectar from flowers, and so forth. Then they have the supplies from their dairies, to which we shall presently come. The larvæ take only liquid food supplied by the worker ants.

While in the larvæ stage, the future ant grows to its full size. Some ants live through the whole winter as larvæ, but others make their next change in the course of six weeks or two months. The next stage is the chrysalis stage. The larva, having been abundantly fed and having reached its full size, turns, like the baby bee, into a chrysalis. Some of the larvæ spin for themselves robes of silk; others remain naked. It is while they are in this stage that the larvæ are collected by men and sold as "ant eggs" for birds and gold-fishes.

During its chrysalis stage the young ant does not take any food. While its limbs are forming, it fasts. But all the while the worker ants are unwearied in their loving attentions. They carry the chrysalises into the sunshine, and back to bed at night, shift them from gallery to gallery, so that proper heat and moisture may be obtained.

#### HOW THE PERFECT ANTS ARE BORN, AND HOW THEY BEGIN TO WORK

Finally, when the time comes, the worker ants help the young ants out of their coverings, so that they may appear before the rest of the family, weak and trembling, but perfect little ants with hearty appetites, ready, as soon as they are strong enough, to be taught the duties of the home, of hunting, of avoiding dangers, and, generally, of helping to keep the home happy and prosperous. If the young ants are males or queens, they have wings, and must be prepared for their wedding day. If they are merely workers, then they set to work at once.

When we understand all about ants, we notice, in opening a nest, that there are many other creatures in the nest, living quite happily, which clearly are not ants. There are eggs, too, which are not ant eggs. Where do they come from? Those eggs are the eggs of the aphids, the little insect which we all know so well by the name of honey-dew.

**THE LITTLE COWS WHICH THE ANTS MILK AND KEEP UNDERGROUND**

The aphid is an insect which lives upon the leaves of plants, or on grass, and other growths. It feeds upon the juice of the plant on which it makes its home, and converts that juice into honey. Now, if there is one thing of which ants are more fond than another, it is honey. Therefore, they make prisoners of the aphides—aphides being the plural form of the word aphid. The little brown ant climbs high plants and bushes to get at the aphides on them. On coming to one, the ant gently caresses the body of the aphid, strokes it, and taps it, and causes the aphid to part with the honey that it contains. This the ant drinks, then passes on to another aphid and repeats the operation of stroking and tapping.

Our little yellow ant, though she looks so humble, is a lady of wealth and substance, part owner of flocks and herds of aphides. Hers are the aphides which live upon the roots of grass. These are the worker ant's cows, and she is not content to leave them in the open, where they run the risk of being preyed upon by other insects. The brown ants may mark off the aphides on certain bushes and plants as their own, and make tunnels in the plants and imprison the aphides in them, and fight other ants which go near them. But the yellow ants do better than this. They take the aphides bodily and carry them into the fortress below. How they manage to feed them we do not quite know. Perhaps they are wise enough to carry down food to them, unless the aphides derive sufficient nourishment from roots growing down into the city.

**HOW THE ANTS FIGHT TO DEFEND THEIR WONDERFUL DAIRY FARMS**

At any rate, the aphides are there, they live there and grow fat, and there they are milked by their owners, the little yellow ants. For that is what it really comes to: the ants milk them as

our neat and nimble dairymaids milk our cows. The antennæ of the ant are the ant's fingers, and it is with these that she pats and strokes the aphid to make it yield the sugary fluid dear to the ant. Nor is this the most wonderful part of the dairy farm. The ants collect the eggs of aphides, and treat them with the same care that they bestow upon their own queen's eggs. They carry the eggs about from place to place, for warmth and shelter, and so forth, and they feed the young ones as they feed the baby ants. If danger comes, they fight bravely in defence of the young aphides, and some of the workers carry them off to a place of safety, while others continue the battle.

For several years Lord Avebury tried to get some aphides to live in his ant nests, but was not successful. At last he put near the nest some plants such as would be found near an ant nest in its wild state. The ants carried some young aphides to these plants, and soon Lord Avebury saw some aphid eggs on a daisy which was among the plants he had deposited. These eggs the ants did not suffer to remain on the stalk of the daisy.

**THE PET INSECTS THAT THE ANTS KEEP FOR THEIR OWN AMUSEMENT**

In October they carried them into their nest, and carefully tended them all through the winter months. In the March the eggs hatched; the ants took the young aphides up from the nest, carried them out into the open, and placed them on the daisy on which they had been as eggs. Thus they would be sure of a supply of aphid honey for the whole of the summer, as well as of a stock of aphid eggs ready to be hatched in the following spring.

This is one of the true fairy tales of Nature which we may all see acted before our eyes if we have the patience to search any plant in the garden to which the ant follows the aphid. Nor is this the only wonder that we may note. We may discover some other inmates of the ant's dwelling. Just as we keep dogs and cats and birds as pets, so the ants keep tame insects as pets. Insects which can be of no use to the ants are kept in the nests, and are played with and fondled by the ants as we play with and fondle *our* pets. If the visitors were not wanted, they would soon be killed, but there they are, as much at home as



the ants, sharing their food and the games of their protectors, with every show of joy and happiness.

One result of the ant's love of honey is to be seen in an extraordinary insect called the honey ant, which is simply a living honey-pot. The worker ants keep these honey ants only to hold the honey that they collect. Full-grown honey-pots never leave the nest, but wait for the others to return home, and to take their honey from them. The honey is stored by the honey ants in their enormously swollen bodies, and when the less fruitful days come, the worker ants go to the honey ants and are fed by them from the rich store of honey collected in their bodies. The honey-pots live only for the service of their fellows, and are so dependent upon them that if they fall over they cannot get up unless they are helped. These ants live in Texas and Mexico and in Australia. This seems a rather rough-and-ready method of collecting food, but there are other ants which go to work more scientifically.

#### **ANTS THAT GROW CROPS OF ANT-RICE AND STORE THEM IN BARN**

The harvesting ants collect grains of corn and the seeds of flowers, and store them in their underground barns. Once the seed is placed in the warm, moist earth, there is a danger that it may begin to sprout and grow. But the brilliant little ants know how to prevent this, though man could scarcely do so. They have some process which we, with all our wisdom, do not fully understand. If we take the ants away and leave their barns untouched, the grain at once begins to grow, and so is useless as food for the ants. If the ants remain in attendance, the grain does not grow.

The ant seems to let the seed sprout just enough for it to alter its composition and change its starch into sugar. Then it gnaws off that part of the grain which would form the root, carries the grain out into the sun to dry, and then carries it back again, ready to be crushed and eaten in the form of sweet flour, a good food to last all the winter.

Another ant, called the agricultural ant, does a still more wonderful thing—it actually cultivates its own crops! It lives upon a seed called ant-rice. This grows round about the ants' nest. But other things grow in the same rich soil. Against these other growths the

ant wages war. It bites them all off close to the ground, and allows nothing but the ant-rice to grow. When the latter is ripe, the ant gathers the seed and carries it down into its granaries below the ground. It is said that the agricultural ant actually sets the seed from which the ant-rice grows, but this is doubtful, and we are not called upon to believe more than we *know* to be true.

#### **THE FIERCE BATTLES OF THE ANTS, AND THE STORMING OF THEIR CITIES**

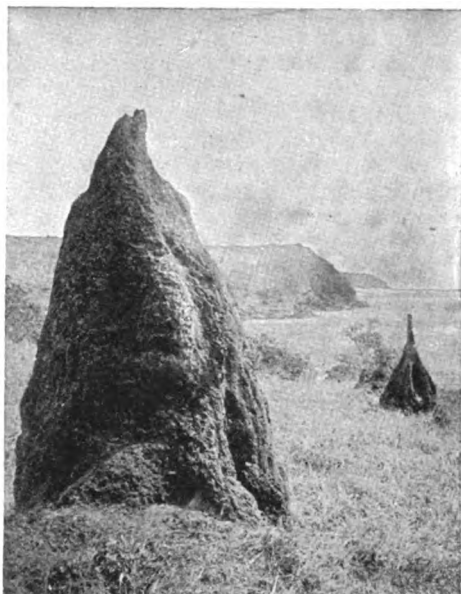
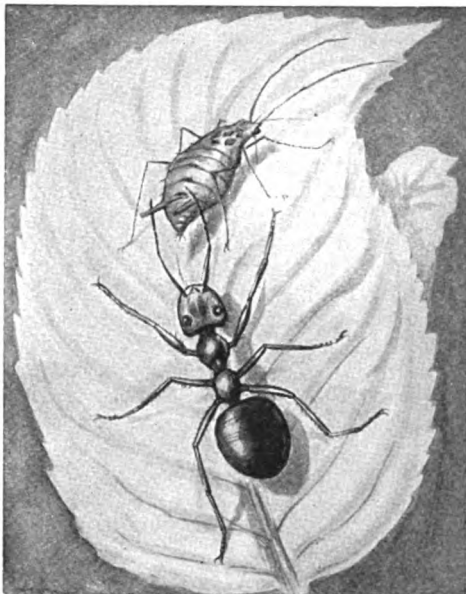
A point upon which we have no doubt is as to the wars and slave raids of the ants. The Amazon ants are terrible tyrants in this respect. They are big, and strong, and fierce, and prey upon ants weaker than themselves. On a certain day, that they seem to have agreed upon, they sally forth to another colony. They run along, smelling with their antennæ for the scent of their victims. When they have found the scent, they hurry straight to the nest, like a human army rushing on a city. The ants in the garrison get to know of the coming of their enemy, and the bravest come out to fight, while the others seize as many of the larvæ and chrysalises as possible, and flee with them. Their only chance of escape is to climb trees or tall stems of grass, for the powerful Amazon ant cannot climb.

Meanwhile, a fierce battle is raging. The defenders fight bravely for their own lives, for the lives of their little ones, and for their homes. But it is in vain. The terrible jaws of the Amazons are too much for them. The invaders rush into the city. They kill all the adult ants they can find, then seize the eggs and larvæ, and dash off with them. Stragglers bravely follow and try to snatch the larvæ back again. A few succeed and dart up stems of plants, bearing eggs or larvæ with them, but only a few do this. Victory lies with the Amazon ants.

#### **HOW THE AMAZON ANTS MAKE ANT SLAVES DO ALL THEIR WORK**

When the stolen children come to life, they are slaves in the Amazon citadel. Born to slavery, they do not seem to mind their hard life, for they have never known what it is to be free. There is not an ant of their species in the nest which was born free—for all the full grown ones have been killed. The slaves now do all the work of the

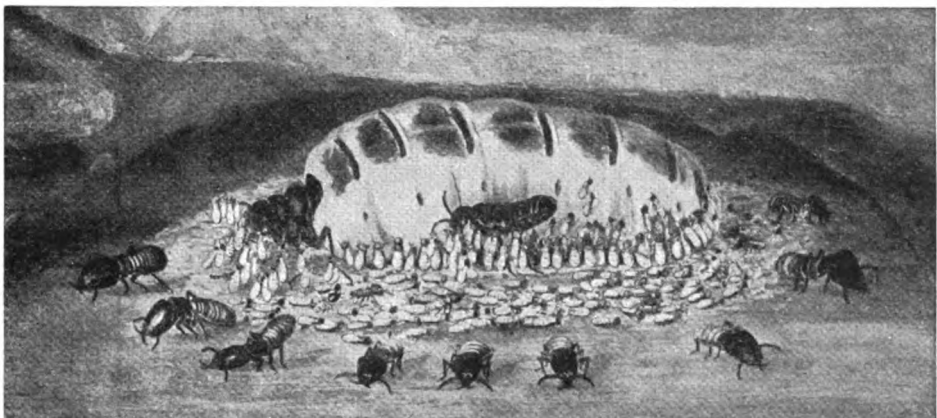
# ROYAL ANTS AND AN ANT MILKMAID



The aphid, or green-fly, is the ant's cow, and here we see, magnified, an ant actually at work milking its cow. This great mound is the work of termites, commonly called white ants, which are destructive foes of men.



This worker ant is born without wings. Its antennæ may here be seen. This queen ant, on returning from her wedding tour, will bite off her wings. The male ant passes one day in the sunlight, and then falls down and dies.



The termites, or white ants, as we wrongly call them, do great damage, but we are bound to admire their home plan. The great queen in the centre is vastly larger than the workers and courtiers which surround her, and she is almost worshipped by them. She has courtiers and workers, and an army of soldiers to defend her home.

city. The big Amazons depend entirely upon their slaves. They have even to be fed by them, and, when it becomes necessary to change the home for a new one, have actually to be carried by the humble servants whom they stole. They can kill and capture, but they would starve in the midst of plenty unless their slaves fed them.

**THE BLIND ANTS THAT TRAVEL BY NIGHT  
AND EAT SNAKES AND PIGS**

There are several kinds of these slave-making ants, and the way they fight is terrible. Some of them besiege a rival colony just like human soldiers. They surround the city, break down its walls, and make their way in as if they had all the implements of war.

It is not against ants only that ants make war. The terrible Driver ants of Western Africa are one of the species that make war on man. They are called Driver ants because they drive everything before them. Moving in countless swarms, they devour everything living and dead that an ant can eat. The amazing thing is that they are blind, yet find their way with unfailing sureness. Travelling chiefly at night, they march in a column, with the large ones on the outsides and the smaller in the centre. They enter poultry-runs and eat the fowls, they raid pig-styes and eat the pigs. They kill every fly and spider in the house. They kill big snakes in the open; indeed, the big snake has such a horror of these ants that before feeding he is careful to look about him to see if any are on the prowl. When he has eaten heartily, the snake must go to sleep. In that condition he falls an easy prey to the ants. But, sleeping or waking, he is always subject to attack.

The fact that they completely clear a house of every sort of vermin they meet on the way is the only thing that makes these terrible pests at all endurable by men. If they have to travel by day, the Driver ants construct tunnels as they go, building with marvellous skill and speed.

**HOW MEN ARE DRIVEN FROM THEIR  
HOMES BY ARMIES OF FIERCE ANTS**

Heavy rains may flood their homes, but the Drivers cling together in masses as big as a cricket-ball and float to safety. They can cross streams by making bridges of their own bodies. They are good scavengers—most ants are—but

they take so much of the good with the bad that they are a pest and a terror to man, who must give up his house while the Drivers are on the war-path.

The same remark applies to ants such as formerly troubled the island of Grenada. They descended from the hills like torrents, we are told, and the plantations, as well as every path and road, were filled with them. Rats, mice, and every kind of reptile were consumed by them, and birds, on alighting for food, were overcome and devoured. Streams of water failed to check them. The leaders rushed blindly into the water; myriads more followed them, till a bank was formed of the dead bodies, sufficient to dam up the water and allow the rest to pass over in safety. Fire was tried without success. They rushed into it in such masses as to put out the flames. A reward of \$100,000 was vainly offered for their extermination. At last there came a frightful storm which tore up the homes of these ants and drowned them out, and so freed the island of a plague of little insects which for long had been too powerful for man.

**WHITE ANTS THAT BUILD TALL MUD HUTS  
AND DEVOUR EVERYTHING THEY FIND**

Men are still plagued by ants. The white ants, or termites, are among the worst. They are really not ants, and belong to a different order of insects. Bigger than ants and possessing more terrible jaws, they are called ants because they live in enormous nests like ants. Their homes are like great mud huts, but full of underground galleries. The domes are as much as twenty feet in height and one hundred feet across, and so strong that a big man can jump on them without breaking them down. The termites can bite through a man's thick clothing, and inflict most painful wounds. They eat almost anything, and destroy clothing, boots, furniture, trunks, books, papers, anything and everything that a man prizes, unless it be of mineral or metal.

This does not exhaust the list of ants and their ways, but it exhausts our space, and should serve to prove that the wonderful skill and intelligence of ants, their virtues and their vices, do seem to place them very close in the scale to the best of men and the worst of men.

The next story of Nature is on page 2983.



## A RACE FOR THE LIFEBOAT

A LITTLE girl named Margaret, who was born and bred in a fishing village on the Scottish coast, was sleeping alone with her mother one summer night.

While the dark hours wore away, the wind rose, and the waves grew big and tossed their manes as they came dashing on to the shore. The mothers and sisters in the fisher cottages woke and started at the sound. They knew that it meant danger to their dear ones away in the fishing-boats. As morning dawned, they stood on the shore straining their eyes in search of sails. While they waited there in trouble and fear, they saw, to their dismay, a ship heaving up and down on the waves, drifting nearer and nearer to the sharp rocks, and helpless to save herself from destruction.

The little crowd of women, children, and feeble old men on the beach stretched out their hands helplessly towards the men in the rigging. There was not a fishing-boat left on the shore; all the strong men and boys were away fishing, and who among that group of people could have launched a boat in such a sea? Yet it was heart-breaking to watch men perish before their eyes. "If only the lifeboat men could know!" cried one woman. Little Margaret heard her,

CONTINUED FROM 2806



and a bright thought came to her. Eagerly she asked if the ship could hold together while she ran for the lifeboat four miles away along the coast. Someone shouted that she would not be able to cross the stream, but Margaret was off. Four miles, and that flooded burn lay before her! It raged like an animal; its banks were flooded; and, worst of all, the small plank bridge had been carried away in the rushing flood.

Into the water Margaret plunged. It nearly carried her off her feet, and she gasped and shuddered as it chilled her through and through. Then rallying all her strength she forced her little body against the current, and inch by inch pressed on. And so the worst was over, and she was out of the stream.

At last the tottering feet of this brave little maid reached the village street, and she had just strength to cry out that there was a ship on the rocks before she lost consciousness. But she had done her work. Kind womanly hands clasped her, and the crew of the lifeboat were quickly in their places. The boat was launched and hastened to the scene of the wreck.

Margaret's deed was not in vain, for the lifeboat was in time, and rescued the crew of the ship on the rocks.

## THE BOLD HERO OF THE MOUNTAINS

ALL countries cherish the name of some patriotic man who has fought for the liberty of his native land. Just as Wales has its Llewellyn, Scotland its Wallace and its Bruce, Italy its Garibaldi, so the Caucasus has its Schamyl, who, for more than a quarter of a century, struggled to keep the wild mountain land of his birth free from Russia's iron grip. He was weakly as a child, but his physical strength was developed by outdoor games and sports, so that he grew up sturdy.

Schamyl was absolutely fearless, and such a youth of his word, that, when he found remonstrance without result in curing his father's drunken habits, his oath to kill his parent if he again transgressed brought the father to his senses, and to the end of his life he abstained altogether from alcohol, knowing that Schamyl would carry out his threat.

When Schamyl was twenty-six years old, in 1824, he began his long fight against the Russian generals who were sent to subdue the land. He was a born leader, courageous in attack, skilled as a strategist, and clever in retreat. Many stories are told of his hairbreadth escapes from the Russians. Once his little band was surrounded by their enemies. If they could not fight their way through the bayonets of the Russians, they must either starve or be cut to pieces, for they knew not the word "surrender." Schamyl, who was ever the foremost and the boldest in attack, galloped alone through the enemy's lines, and reached in safety his mountain fastnesses, as we see in the picture. He was the only one to escape with his life, and his pious

Mohammedan countrymen believed the angel Gabriel specially protected him. During another fight Schamyl killed three Russians, but was himself pierced through by a bayonet. Yet he slew his assailant, and got away as by a miracle. He was then chosen chieftain and ruler of the Eastern Caucasus by his compatriots. Little wonder that his people rallied to him as to a prophet who was born to deliver their country.

A mountain fortress long held by Schamyl was at last captured by the pick of the Russian troops, and again he was the only man to escape. It is said that he let himself down the steep rock by a rope to the river below, boarded a raft, and thus got away. Many generals were sent against Schamyl, but he eluded them all, and time after time rallied his countrymen to his standard. One general died through shame at being conquered by such a small band of mountaineers. Russia's attention was for a time diverted by the Crimean War; but that over, new efforts were made to overcome Schamyl and his brave countrymen. The end was inevitable, for Russia's resources were enormous compared with Schamyl's. The latter took refuge in a little fortress on a hill in Daghestan, and there, when all except forty-seven of his men were killed, seeing that, even if he did escape, there were no longer any patriots to rally, he submitted.

Schamyl was not a wild brigand, but a wealthy man of culture and high character, who ruled with justice and ability, was merciful to the Russian prisoners, and fought for love of his country during many long weary years.

THE NEXT GOLDEN DEEDS ARE ON PAGE 3009



## AMERICAN SONGS AND SONG WRITERS

FROM early days our American poets and composers have shown remarkable aptitude for creating popular songs. They have brought together words and music which the public have welcomed and sung with delight because they expressed what was in the hearts of all men and women. More than once our songs have touched the hearts of other nations too and have gained a world-wide popularity. Although some critics have called them crude, some of the greatest composers in the world have recognised genius in their very simplicity.

Music has been called "not food for the soul but wine." A stirring song lifts the spirits of those most exhausted and depressed, and helps them to fresh courage. When some years ago need arose for more overseers of the labourers on the Panama Canal, overseers who could sing and influence the men to sing while at work were given the preference. For it had been found that the cheering influence of singing kept the men from homesickness and helped them to do better work.

However beautiful they may be songs which deal with peculiar or individual experiences instead of with those which everybody knows and shares, never stir great enthusiasm. To be popular a song must draw people together with a sense of brotherhood. It must express some universal feeling simply and directly.

The Concord Hymn by Ralph Waldo Emerson, sung at the completion of the Battle Monument at Concord on the anniversary of the battle of Lexington is a beautiful poem. But because it is the work of a man somewhat withdrawn from the mass of his fellowmen it lacks this necessary quality. Its patriotic theme and its literary beauty have not been enough to make it popular.

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A sentiment which comes to everybody as he or she grows older is love of what has been familiar in childhood. The first successful American songs were mostly of this character. One such as *The Old Oaken Bucket*, written in the summer of 1817 by Samuel Woodworth, the son of plain people, and a man of little education, but of strong, true feeling. Songs like his; like *Roll on, Silver Moon*, by Joseph Turner of Charlestown, Mass., who set his words to an English tune, are what most appealed to the popular fancy before the crisis of war aroused demand for music impelling more stirring emotion.

### SONGS OF SENTIMENT AND HOME

Of all the songs inspired by love of home, *Home, Sweet Home* has been the most enduringly popular. Like many another favourite, it was written for the stage. Its author, John Howard Payne, was living at that time in Paris. He had been sent there by an English theatrical company to find and adapt French plays and operas for the English stage. One opera which he thus made over and in fact largely composed was *Clari*, and for its homesick heroine he wrote his famous song. He himself was lonely and homesick for his native America, and the words express his mood of love and longing, the mood of all exiles from what is dearest and most familiar. But for this song John Howard Payne would now be forgotten. Yet in his own day he was a celebrity for other achievements, and he became one very young.

He was born in New York June 9, 1791, of fine old New England stock. Most of his childhood was spent in Easthampton, L. I., where the home he immortalised may still be seen. He was an uncommonly handsome and gifted boy, with a strong desire

to go on the stage. Unknown to his family, the young stage lover started and conducted a little theatrical paper called *The Thespian*. The *New York Evening Post* decided to reprint one of *The Thespian's* articles, and this led to acquaintance between young Payne and Mr. Coleman, editor of the *Post*. Mr. Coleman was astonished to find the able writer a lad of only fifteen. He became interested in him and with another gentleman raised funds to send him to Union College, Schenectady, N. Y. Payne still desired to go on the stage and finally money troubles caused his father to consent. For a few years the youth had a brilliant success as an actor both here and in England. Then strangely enough his talent flagged and changed. Some power went out of him which never returned. He finally withdrew from the stage and supported himself by writing, adapting, translating, and in various ways belonging to stagecraft.

Like many another man of talent, he was lacking in practical sense. However much money he was making, he never managed to save for the future. He never could be thrifty. He was in money difficulties, when through the influence of friends he was appointed American Consul at Tunis, where he died in 1852.

The world went on singing *Home, Sweet Home*, and those who had known its author felt that he was entitled to at least a grave in his native land. Twenty-one years after his death Mr. W. W. Corcoran had the poet's body brought from Tunis to Washington, D. C. The President, his Cabinet and a body of soldiers escorted it to Oak Hill Cemetery, where it was laid finally to rest.

## NEGRO MELODIES

Our American song-writers have the distinction of having created a unique form of popular song, negro melodies. That these have a singular charm has been acknowledged the world over. Sometimes plaintive, sometimes rollicking, they are characterised by simple, tender and appealing melody. Most of them appeared originally in *Minstrel Shows*, a form of entertainment alto-

gether American and for many years immensely popular, both before and after the Civil War. They were a curious mixture of buffoonery, local and contemporary jokes, and these delightful songs. Many of the best known — *Way Down upon de Swanee Ribber*, *Old Uncle Ned*, *My Old Kentucky Home*, *Old Black Joe*, *Old Dog Tray*, and many others — about 160 in all — were written by a Northern man, — Stephen Collins Foster, of Pittsburg. It is sad that a man whose genius has for so long been a source of good and pleasure should himself have been unhappy and unfortunate. His career was wrecked by intemperance. His life began in a most promising way, for he was the youngest and well-beloved son of cultivated, well-to-do people. He was born on July 4, 1826, to the strains of *The Star Spangled Banner*, which was being played on his father's lawn by a Pittsburg band. Stephen had every advantage of education. From a little child he was a musical prodigy and composed songs. His first published song, *Open Thy Lattice*, appeared when he was sixteen. From that time he became increasingly popular. His songs earned a great deal of money but it was for other people. Stephen remained poor. Two songs, *Oh Susanna*, and *Uncle Ned*, he gave to a friend, who made \$10,000 out of them.

The *Christy Minstrels* had a great reputation in his day and nearly all Foster's songs were written for them. *Old Folks at Home* has proved the most lastingly popular. It has been widely translated and is known the world over.

After his death in Bellevue Hospital as the result of an accident when he was thirty-eight, Foster was carried to Pittsburg and buried beside his parents.

## A NORTHERN WRITER WHO WON SOUTHERN FAME

Another songster who won love and fame but not money was Daniel Decatur Emmett. He wrote many popular songs and one very famous, *Dixie*. He was a well-known minstrel himself, a clever actor and singer, loved as "*Old Dan Emmett*" by his comrades on the stage. In spite of his great popularity



he is said to have earned only about \$600 in all as a song-writer. Like Foster, he too began to write when very young. Old Dan Tucker appeared when he was fifteen. He was a Northern man, in sympathy with the Union cause, which makes it an odd fact that he should have written Dixie, the great war song of the Confederacy. He wrote it in 1859 for the well-known Bryant's Minstrels, of which show he was then a member. "I wish I was in Dixie" was a much used phrase with show people forced to travel in the chilly North in the winter instead of in the balmy South. It occurred to Emmett on the blustering autumn day when he had set himself to write a new song for his show. He was in New York, and there Dixie was first sung. A year and a half later it was introduced into the opera Pocahontas, and first sung in the South at the Pontchartrain Theatre in New Orleans. A company of Zouaves marched on the stage singing it, were received with great enthusiasm, and it immediately became popular throughout the South, the favourite tune of the Confederate army. When many years later Mr. Emmett visited the South as the author of Dixie, he received an ovation everywhere. The friendly old man enjoyed the attentions heaped upon him but soon had enough and was glad to return to his little home at Mount Vernon, Ohio. There in a plain cottage, busy with his chickens and his garden, he lived very simply and contentedly until his death in 1904 at the age of 89.

#### AMERICA'S MOST POPULAR DITTY

Nobody knows just how or why Yankee Doodle became our national ditty. We know that our poverty-stricken, ill-equipped soldiers cheered their spirits by singing it during the weary marches of the American Revolution. The story goes that a certain Dr. Schuckburg, an army surgeon, is responsible for introducing to the army as a famous military air of England what really was an ancient nursery rhyme. His joke was more successful than he could have foreseen. It found favour with our ragged regiments. The rollicking verse joined to the melody

suited the rough and ready spirits of the rank and file. The tune has won high favour from no less an authority than the famous pianist Paderewski. From Rubenstein, too, who played it with variations while in America. Many different words have been set to it. After the original doggerel, the most noteworthy version is perhaps the Battle of the Kegs, written by Francis Hopkinson, father of the Hopkinson who wrote Columbia. This poem commemorates a well-known incident of the Revolution, an attempt by David Bushnell of Connecticut to blow up the British fleet at the mouth of the Connecticut River by floating kegs of powder down on them. The attempt failed through the premature explosion of one keg.

From time to time more dignified words have been written to the tune of Yankee Doodle but none have succeeded in replacing the first doggerel in popularity. Yankee Doodle, as we know it, has been aptly called "our national Mother Goose, the nursery rhyme of the American Army."

#### THE STAR SPANGLED BANNER

A sentiment which we all share is love of country. Naturally this stirs us most in periods of national stress and struggle. When war clutches the land our singers have always burst forth in patriotic song. Our war songs have come from the hearts of their writers. When Francis Scott Key, then a handsome and clever young lawyer, wrote The Star Spangled Banner he could not have foreseen that it would become the National Hymn of his native land, and that every night, when the flag is lowered at sunset, at every fort and on every flagship of the navy it would be played by the military bands. All night Mr. Key had listened to the bombardment of Fort McHenry near Baltimore. If the fort fell, he knew that Admiral Cockburn, Commander of the British Squadron, would proceed to attack Baltimore. The day before Mr. Key, in an American vessel which our government had placed at his disposal, had visited the British flagship to obtain the release of a friend who was prisoner of war. This was granted, but the two,

with one other American, were detained on their vessel for fear that if allowed to land they would reveal the British plans. While daylight lasted the anxious Americans watched the flag. When dawn revealed it still floating above the fort, they knew the attack had not succeeded. Then, in his joy of relief, Key drew an old letter from his pocket and on its back wrote the first stanza of The Star Spangled Banner. He finished the poem later in the day, when his vessel had been allowed to land. It was first printed as a hand-bill enclosed in a fancy border. One of Key's friends, Judge Nicholson of Baltimore, saw that the tune of Anacreon in Heaven, an old English drinking song, fitted the words, and the two were quickly united with astonishing success. Military bands seized upon the new hymn and it was played upon every occasion. From that day to this its popularity has never flagged. The old flag which prompted the poem, much torn by shot and shell, much cut down from its original size, still exists. It was stoutly made to withstand time by Mrs. Mary Pickersgill.

#### **HAIL, COLUMBIA**

Like so many of our songs, Hail, Columbia was written for the stage. It was first sung at an Actor's Benefit in Philadelphia in 1798. The actor, Gilbert Fox, for whom the benefit was given, anxious to have the occasion a success, asked a clever friend, a young lawyer named Joseph Hopkinson, to write a patriotic song. Mr. Hopkinson wrote the poem and set it to the tune of the President's March. The tune, which greatly helped the popularity of the song, is said to have been composed by a Philadelphia musician of German descent named Roth. It was received with great favour, the big audience joining in the singing. People flocked to hear it. This popular melody is said to have had a helpful influence on public affairs. There was at the time some danger that the United States might interfere in difficulties then increasing between France and England. Hail, Columbia awakened home pride and patriotism and a feeling that we had

problems enough of our own without interfering with those of other nations. Philadelphia was then our National Capital, and hearing of the stirring new song, President Adams and his entire Cabinet went to the theatre to hear it.

#### **OUR NATIONAL ANTHEM**

America, so well known and loved by American school children, was written in February, 1832, by Samuel Francis Smith, a graduate of Harvard College and at the time a student in the Theological Seminary at Andover, Mass. The young man was a passionate lover of music. He was twenty-three when he wrote American words for an air which he had found in a collection of German melodies. The result was America, and though he lived to be eighty-seven and wrote other hymns and songs, he never equalled its great success. It is said to have taken him only half an hour to pen the words so familiar to us all.

Many legends have sprung up about one of our most familiar songs — John Brown's Body. We know that the tune belonged originally to an old camp meeting hymn. Some investigators claim that the John Brown meant was an ungainly Scotch soldier, whom his comrades loved to tease. His regiment, the 12th Massachusetts Infantry, was the first to sing the song, of which there have been many variations. The soldiers and the public generally have always loved it and refused to substitute finer words or poetry for the cruder doggerel. William Steffe, writer of many much loved hymns, is said to have composed the music.

#### **THE BATTLE HYMN OF THE REPUBLIC**

Mrs. Julia Ward Howe's great Battle Hymn of the Republic was originally intended to supply nobler words to the John Brown tune. She wrote it at the request of James Freeman Clarke, who went with her and others to visit an army post near Washington. She heard tired soldiers singing John Brown's Body as they returned from a skirmish, and while the wounded were being carried to their pallets, the stirring strains took possession of her and kindled her ready patriotism to lofty expression. A woman of genius, of fine character, of

highest ideals for her country, she put her best of heart and mind in her great poem. The Battle Hymn of the Republic ranks as the finest song of the Civil War.

#### MARCHING THROUGH GEORGIA

Marching Through Georgia is one of our greatest war songs. The man who wrote it, Henry Clay Work, had very little technical education in music. In his patriotism he found inspiration for the stirring words and music which many a time were to cheer and help along weary, footsore soldiers. Oddly enough, General Sherman, the leader of that famous march, is said to have always felt a great dislike to the song.

Another war song, so beloved and stimulating that it was often ordered sung just before the men went into battle, was Tramp, Tramp, Tramp, the Boys are Marching, better known as "The Battle Cry of Freedom." Unlike Work, its author, George F. Root, was a musical scholar and teacher of music, and in his day one of the first authorities in musical matters in this country.

An ardent young Southerner, James Ryder Randall, impatient that his native state should delay in joining the Confederacy, wrote Maryland, My Maryland, considered one of our finest war songs and the best beloved by southern people. He wrote it at a single sitting in the dead of an April night in 1861, in New Orleans, where he was then employed upon a newspaper. The words were published in the New Orleans Delta, received with great favour, and very soon set to music. A young lady, Miss Jennie Cary of Baltimore, had the honour of establishing My Maryland as an army song. She set it to a German melody, and sang it upon the occasion of a serenade given her sister at Fairfax Court House, Virginia, by a body of Gen. Beauregard's troops. Another well loved song of the Southern Confederacy was the Bonnie Blue Flag. There is some doubt whether it was written by Henry McCarthy, author of other songs, or by Annie C. Ketcham of Kentucky. We know that it was first sung at the Varieties Theatre in New Orleans in 1861.

#### COLLEGE SONGS

The college song, whatever its rollicking form, is apt to have something of academic flavour. Notably so is the case of one of the most famous — Fair Harvard — written by Samuel Gilman. He was an alumnus of the great University of which he sang. Born in Gloucester, Mass., in 1791, he became a Unitarian clergyman. He was forty-six years old, living in Charleston, S. C., when he wrote the song.

The public had to some extent forgotten a once very popular song when the great success of Du Maurier's story, Trilby, both as novel and play, in which this song, Ben Bolt, was introduced, brought it back to favour. The author was Dr. Thomas Dunn English, a physician, and a reserved and scholarly man. He wrote his one famous song by request as a poem for the New York Mirror, and was considered sufficiently paid by the honour of having it printed. The words appeared in 1843. It was quickly perceived that they were well adapted to singing and various tunes were tried. The first was discarded. Another composed by Dr. English was not successful. Finally a German melody with some adaptations was found to fit the words and the new song became widely popular in America and England. Dr. English did not greatly admire it himself.

#### HYMN WRITERS

America is justly proud of her hymn writers — of the Cary sisters, Dr. Mühlenthal, Bishop A. C. Coxe, and many others who were able to voice the religious longings and consolations of which all the world knows something.

These cannot be made to order. Critics have declared that not one of our patriotic airs is quite worthy of being the national hymn. The New York National Hymn Committee, its members prompted by patriotism and equipped with musical knowledge, was formed in the hope of calling forth something splendidly adequate. Twelve hundred manuscripts were submitted — much good painstaking work — but not one song worthy its high purpose.

## A FAMOUS CASTLE & A MIGHTY ALPINE PEAK



The quaint old castle of Chillon, on the Lake of Geneva, has become world-famed through Lord Byron's poem "The Prisoner of Chillon," some lines from which we find in another part of this book. But, apart from its history, which dates back 1,000 years, the castle would be famous because of the superb beauty of its surroundings.



The Matterhorn, which we see towering before us in this picture like a mighty obelisk, is the most impressive and inaccessible of all the Alpine peaks. It rises 14,837 feet above the sea-level, and was first ascended, in 1865, by a party of four Englishmen with three guides. In the descent, however, three of the travellers and a guide were killed, owing to the breaking of a rope. Nestling below, we see the tiny little town of Zermatt.



Typical scenery in the Swiss Alps, showing the Jungfrau, one of the grandest peaks in Europe.

## SWITZERLAND OF THE SNOWS

"Boys and girls come out to play" is the standing invitation from the little central country, Switzerland, to the nations of the world. They respond very willingly, thousands and thousands of them, not only from the neighbouring countries of Germany, France, Italy, Austria, but through them—for Switzerland has no sea-coast—from Holland, Great Britain, and the United States; from Russia, and everywhere else.

We have not far to look to find out the principal reason why this small country, about half the size of Maine, is so attractive. The posters of the railway and tourist companies, who make it possible for tired people to go quickly and cheaply to "play" out of their own country, as well as the advertisements of some of Switzerland's chief industries, all give us a broad impression of grand scenery, very different from that usually before the eyes of dwellers in the cities and country parts of our own land. Dazzling white mountains stand out against the bluest of skies; dark forests contrast with bright green meadows down the hill-sides, and reach to the shores of wide lakes of ever-changing colour—purple, blue, green, gold; and into the lakes pour the foaming white rivers.

As we look more closely at these striking and beautiful features on the face of Switzerland, we shall realise

CONTINUED FROM 2860



what an influence the relief of the country has had in shaping its story. It can well say "My face is my fortune," not only because its beauties year by year attract visitors, who spend in it an enormous amount of gold, but chiefly because its protecting, invigorating mountains, its fertile valleys and useful lakes, have enabled the Swiss themselves through the centuries to develop into a sturdy, free, industrious nation. There are to-day about three and a half millions of Swiss—much less than the population of New York; but they live independent in the midst of powerful neighbours, who have tried to annex their country in times past.

Before glancing at the story of the past—which is chiefly the story of their relations with these immediate nations—let us try to get a clear idea of Switzerland itself with the help of a relief map, if possible, such as those in the educational departments of our great museums. We have already seen that the great solid mass of the Alps, the highest land on the Continent, stretches across Europe from the Rhone to the Danube. Its western end is in France, where, south of Lake Geneva, the highest peak of all, Mont Blanc, rises over 15,000 feet. Its eastern end is the Austrian Tyrol, of which we see pictures on page 2859. It is the central part of the great

highlands that cover more than half of Switzerland with grand ranges of mountains, the tops of many being above the line of perpetual snow. Amongst others there are Monte Rosa, nearly as high as Mont Blanc, and the Matterhorn, near where Switzerland touches Italy, and the Jungfrau and many more about forty or fifty miles north of the frontier.

**THE BLUE RIVERS OF ICE THAT SLIDE SLOWLY TO THE SEA**

Valleys separate the ranges and groups of mountains; some a mere cleft in the bare rocks; some wider, and green with grass and gorgeous with wild flowers in spring and summer; others again are filled with deep, dark forests.

In nearly all the valleys are leaping and dancing streams. Very high up the rivers only slide and crawl a few feet in a year, for they are frozen hard. These glaciers, or rivers of ice, some of them twenty miles long, are amongst the great wonders of the Alps. Their surface is usually very rough and heaped up, like waves suddenly frozen hard. The edges of the ice, seen in the great cracks called crevasses, are of a vivid blue colour, as they are also at the end of the glacier, where the warmer air forces the ice king to loose his grip, and the water escapes on its journey to the sea.

Comparatively few of Switzerland's visitors climb over the glaciers and up the highest peaks. It needs strength and endurance to climb in the intense cold, roped to guides, who show the way and cut steps when needed in the ice. But those who do go enjoy it amazingly, so fine is the pure air, so grand the immense views and the solemn stillness and beauty of the white world.

**THE GREAT WHITE WORLD BATHED IN GLORIOUS RED AND GOLD**

It is not always white, though, for at sunrise and sunset in clear weather both sky and snow are bathed in glorious colour—rosy red and gold. The stillness, too, is often broken by the thunderous roar of avalanches—masses of snow that slip down the mountain just as snow does off a roof, overwhelming any life that may be below.

Between the High Alps and the plateau, or high plain, of Switzerland, there is a beautiful mountainous district which reminds us of Scotland, with its picturesque rocks and pine-woods,

heathery moors and mountain lakes. In many of the valleys, and round the lakes of Thun, Brienz, and Lucerne, thousands of visitors find villages in which to stay. There are even hotels at the tops of some of these mountains, such as the Pilatus and the Rigi, with wonderful railways which climb up the steep mountain-sides from the valley below.

In the plain of Switzerland, which lies between the Alps and the Jura Mountains to the north, are little wooded hills and green slopes, wide fields shaded with fruit-trees, or richly cultivated with crops of many kinds. The country is now covered with towns and villages; everybody is busy, either working in the fields or in the towns at various manufactures. At the south-west of the plain lies the great Lake of Geneva, so large that it takes a fast steamer two hours to go from one end to the other. Geneva is at the south corner near France. At the north-east of the plain is Lake Constance, whose further shore is in Germany. Between these two largest lakes are many smaller ones, such as those of Neuchâtel, Bienne, Zürich.

**THE RIVER RHONE THAT RISES IN A BEAUTIFUL BLUE GROTTO OF ICE**

All the chief towns of Switzerland lie round the lakes, or on the rivers of the plain. These rivers rise within a few miles of each other in a great central mountain mass near St. Gothard, and run in widely different directions. There is the Rhone, rising in a beautiful blue grotto of ice, at the end of the Rhone glacier, and running along a wide and fertile valley to Lake Geneva. It is most interesting to watch the different colours of the water of the river as it pours into the lake. Soon after leaving the other end of the lake, the Rhone passes into France on its southward journey to the Mediterranean.

The upper Rhine takes a north-easterly course to Lake Constance, and after leaving it at the further end, makes the wonderful falls at Schaffhausen, and later, turning north at Basel, becomes the German Father Rhine. The river Ticino rises near the Rhine, and flows down the south slopes of the Alps, leaving Switzerland as it passes through Lake Maggiore to join the Po, the great river of North Italy.

The Inn, which we have already seen at Innsbruck, on page 2859, on its way



## HEROES OF THE SWISS FIGHT FOR FREEDOM



At the beginning of the fourteenth century the oppression of the Austrian rulers had become so unbearable to the Swiss that three brave patriots determined to resist. They called together a few trusty countrymen, and in a lonely meadow at Ruetli, with none looking down upon them save God and their rugged Alpine peaks, they took a solemn oath to stand together and preserve the freedom of their nation. This is a landmark in Swiss history.



One of the Swiss patriots who took the oath at Ruetli to fight for freedom was William Tell, whose story we read on page 1674 of this book. He was compelled by a brutal Austrian governor to shoot an apple placed on his little son's head, and the rejoicings of the people when Tell succeeded in transfixing the apple without hurting the boy were very great, as seen. Whether or not the story is true, it shows the spirit of the Swiss people.



to join the Danube, rises not far from the Rhine. Another important Swiss river is the Aar, which rises near the Rhone, and flows through Brienz and Thun, and then in a winding course to the Rhine past Schaffhausen. Berne, the capital of Switzerland, is on the Aar.

**MEN WHO LIVED ON PLATFORMS BUILT IN LAKES, TO ESCAPE FROM WILD BEASTS**

Now, in the Museum of Berne there is a deeply interesting model of a settlement built on a lake. It shows us how piles were driven into a soft shore where the water was shallow, how a floor of wood was fastened above the piles, and how, on the floor, the huts were built of wood and hurdles, and roofed with rushes. There was a gangway easily removed to connect with the shore. As far as we know, the people who lived in these lake-dwellings were the earliest to settle in the country. At any rate, it is believed that their times date back to a thousand years before Christ. Life was very wild then in Central Europe, and it is supposed that men made their homes in this fashion to get out of the way of wild animals and their wild neighbours, just as tribes in Africa do to-day.

We should know very little about the lives of these folk if their possessions had not been preserved by fire. This sounds strange, but when the flames were consuming these old homes the remains became crusted with charcoal as they fell into the soft bed of the lake beneath, and so have lasted safe and perfect to these days. What a fine time the lake-dwelling children must have had, playing about in the boats, fishing, paddling, and bathing in the sun, or taking a run on the shore, or enjoying refreshment amongst the raspberry-canes, or sitting round the cosy fireside at evening, when the cows had been brought over the drawbridge for the night, and the day's work was finished.

**RELICS OF THE SWISS LAKE-DWELLERS THAT MAY BE SEEN IN LONDON TO-DAY**

In a large case in the Prehistoric Room in the British Museum, labelled "Swiss Lake-Dwellings," we can see the nets, the blackened stones, and raspberry-seeds and ears of corn, the fishing boat and hooks, the pottery, small mugs for the children, and tiny bracelets for their arms, amongst many other things that make this far-away time quite real to us. These settlements have been found

in the lakes of the plain, such as those of Geneva, Neuchâtel, Bienne, and Zürich. The next race of men who made their home in the plain of what we now call Switzerland were the Celts, in many ways like those who lived in Britain. They were very brave and warlike, fond of ornaments and fine armour, and were led by Druid priests. Gradually they were subdued by the all-powerful Romans, who adopted the same plans as they did later in Britain. Fine roads were made across the high passes of the Alps from Italy to the towns that rose up in the plain under Roman rule.

The chief roads were over the St. Bernard Pass and the Julier Pass—where there are still two milestones of the emperor in whose reign Christ was born. In the museums of all the large towns of Switzerland are many remains of the conquerors of the Helvetians, as they called the chief of the Celtic tribes. Along the beautiful and sheltered shores of Lake Geneva the rich Romans had fine villas, as they had in the Isle of Wight and other favoured spots, and to this day there are ruins of temples and other buildings belonging to the Roman times.

**HOW VARIOUS TRIBES WERE BLENDED TOGETHER TO FORM THE SWISS NATION**

East Switzerland was never so thoroughly Romanised and subdued as the western part. Hence, when the Teutonic or German tribes succeeded at last in settling in the country—the power of Rome having died out—the Alemanni in the north-east entirely absorbed the Celts who lived there, and who had but little power of resistance, and planted a true German people, with their own laws, language, manners, and customs. With the Burgundians—also a German tribe, who settled in the south-west—it was different. While they brought fresh vigour into the country, they were influenced in their turn by the civilisation of the Romanised Celts, and were gradually blended with the earlier settlers, thus forming a new people, the foundation of whose speech was Latin. This was the beginning of a German speech and a Latin speech, which developed into French, being spoken side by side in the little central country. There is no Swiss language to-day. The larger eastern part still speaks German, like the country it borders on, and the smaller western part,

## SWISS TOWNS AT THE BENDS OF THE RIVERS



Zurich is the largest and most important town in Switzerland, and many splendid buildings have been erected there in recent years. It is the centre of the Swiss silk manufacture, and Zwingli, the Swiss reformer, lived there.



Berne, the Swiss capital, is a delightful town, with a university and a fine museum, and it contains the Swiss Parliament House. It is situated at a bend of the river Aar, and commands a fine view of the Alps.



Lucerne, the great centre for Swiss tourists, is a curious mixture of the ancient and the modern, for while retaining its old walls and watch-towers, it is well equipped with modern improvements, such as electric lighting in the streets.



Interlaken, one of the most beautiful of all the beautiful spots in Switzerland, commands a good view of the famous Jungfrau peak, 13,669 feet high, the white mountain that can be seen in the middle of this picture.

The photographs on these pages are by the Photochrome Co., and Wehrli Aktien Gesellschaft, Zurich.

touching France, speaks French. Where the south border now runs down into Italy, the people speak Italian.

For long years the two races were at war with each other, then both were subdued by the Franks, who governed by their officers and counts. The great Charlemagne, whose dominions extended from Spain to Hungary, from Denmark to Rome, spent much time in Switzerland, chiefly, it is believed, at Zürich.

#### THE IRISHMAN WHO FOUNDED A SWISS ABBEY AND FORMED A GREAT LIBRARY

Many great monasteries and abbeys were founded or made more important in Charlemagne's days. One was that of St. Gall, founded by an Irish missionary, in which learning was carried on, and valuable books written and collected during the years of warfare and trouble that fell upon the country. At St. Gallen, now one of the chief industrial towns of Switzerland, many of these old manuscripts are still to be seen.

When Charlemagne's dominions were divided, the east and west divisions of what is now Switzerland fell apart again, and boundaries and rulers were constantly changing, and the people had a desperate struggle to keep any of the old rights, so dear to the hearts of all nations of German descent. Powerful churchmen and great families who had secured large grants of land, all managed to destroy the liberties of those who lived on the soil, just as in England, about the same time, the Normans were crushing the English.

When the German emperors took possession of the country they governed by nobles, who became more and more powerful and ambitious as the power of the Holy Roman Empire declined. It was the growth of free towns that helped the people to resist their lords.

#### THE FINE OLD TOWNS OF SWITZERLAND THAT TELL US OF THE PAST

These towns were walled, and they had charters which gave them freedom to trade and make money, like the free towns of Germany. Fribourg, meaning "free city," and Berne date from the twelfth century, and in their fine old buildings and handsome fountains we have many reminders of the far past. It was also in this century that the Crusades were preached in Switzerland with great fervour, and many brave men rose up and went, never to return.

In the next century comes the rise of the Hapsburg family, from amongst a crowd of nobles on Swiss soil, all trying by conquest, marriage, purchase of lands, or unjust takings, to get the lead. We have already seen the brilliant success of Rudolph of Hapsburg, who rose to be German Emperor. In Switzerland he waged war with Berne, forced lands from nobles and abbots, seized farms and estates, and his heavy hand was felt all over the country. Perhaps because it was so heavy the people resolved to bear it no longer. Anyway, the love of freedom seemed to revive, and their determination raised an enduring obstacle to Hapsburg ability and energy.

One of the tributaries that makes the Aar so large and full when it joins the Rhine is the Reuss. Leaping down the rough sides of the St. Gothard like the other rivers, it passes on through a long narrow lake with many branching armlets, and then out at the further end with rapid swing, past the beautiful old town of Lucerne.

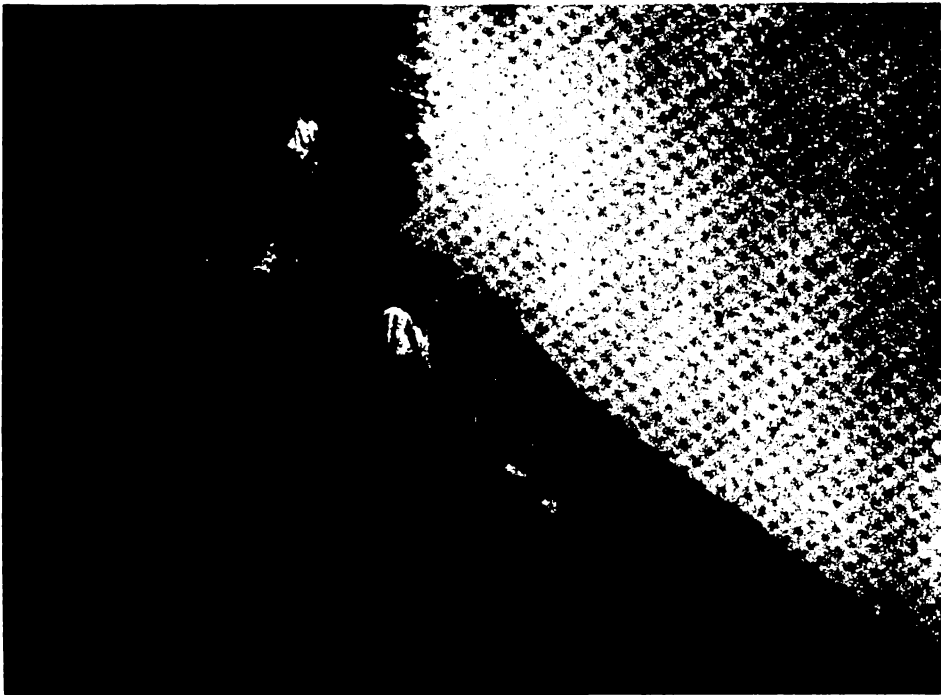
#### THE FIERCE FIGHT FOR SWISS FREEDOM THAT TOOK PLACE ROUND A LAKE

It was round the shores of the Lake of Lucerne, sometimes called the Lake of the Four Cantons, because four cantons, or counties, share its shores, that the brilliant struggle for Swiss independence was carried on in the thirteenth and fourteenth centuries against the tyranny of the Hapsburgs.

Three out of the four cantons formed a league. They were Schwyz, which has given its name to the whole country, Unterwalden, and Uri. The men who lived in these three famous states, or cantons, were descendants of the freedom-loving Alemanni, and for them the lake was a common outlet and rallying place. Their towering mountains and valleys, hidden away from the rest of the world, had kept them distinct and self-reliant, and their bodies were hardy from the perpetual struggle to make their living under difficulties; their spirits were bold and fearless from constant contact with danger, which each had to meet for himself. Added to this was the intense love of country which makes brave men dare anything, just as a mother knows no fear when she has to protect her child. When once we see this glorious country, its towering



# SWISS PEASANTS AT WORK AND PLAY



Living for centuries in their romantic valleys, amid grand and lofty mountains, the Swiss people, although made up of many races, have acquired a national character all their own. They have a buoyant love of liberty, and delight in a life as free as the air they breathe. Here we see a Swiss peasant family at play upon one of their grassy slopes.



Swiss women work as hard as the men. Here we see a mother carrying a churn of milk from the pasture. She is giving a flower that she has picked to her little child.



The Swiss peasants live in wooden houses built of logs that look as rugged as the mountains on which they stand. Here a peasant is storing fodder for the winter.

mountains, frowning, steep rocks, wide-spread forests, lovely green slopes, orchards and meadows, and the unspeakable beauty of the lake with its soft blue distances and deep shadows, it is easy to understand the patriotism of the three forest cantons.

#### **HOW THREE MEN MET IN THE MOUNTAINS AT NIGHT TO SAVE THEIR COUNTRY**

Many of the romantic stories that have been handed down through the centuries about these times are now considered untrue. But they are so firmly embedded in the country's story, and illustrate in such a graphic way the spirit of the times when the union, or confederation, of the states was taking place against a powerful enemy, that we still love them, even if the details are not true. Here is one of the stories.

On a green meadow, above the Uri branch of the lake, three patriots who had suffered greatly from Hapsburg rule met in the still, dark nights, and talked over their wrongs, and vowed to free their country from oppressors and to restore its ancient liberties. Friends joined them till the band became thirty-three. As these men raised their right hands to heaven, making covenant together, "One for all, and all for one," the sun shot its first cheering rays over the mountain-tops, and seemed to promise success. The three men of Ruetli have long been national heroes of the Swiss, who showed the way of resistance to their countrymen.

The romantic story of William Tell, who shot the apple from his son's head, is told on page 1674 of this book. All over Switzerland are statues and pictures to illustrate the act. One of the most beautiful poems of Schiller has spread the story or legend of William Tell all over the world.

#### **A WHIRLWIND OF MEN THAT RUSHED DOWN UPON THE FRIGHTENED AUSTRIANS**

In 1315 the spirit of resistance to the Hapsburgs led to the great battle of Morgarten, and this brilliant victory began a series of successes which for two centuries increased the feeling of union, as well as the military glory of the Swiss cantons. At Morgarten the large Austrian army was overwhelmed and destroyed in a narrow pass by the mountaineers, few in number. They lay in wait on the heights, and at the right moment hurled down on their foes

stones, rocks, trunks of trees. Then the main body of the men of Schwyz and Uri rushed like a whirlwind down the hill on the terrified Austrians.

Some seventy years later the Austrians were again defeated. The battle of Sempach is famous for the brave deed of Arnold von Winkelried, about which we read on page 122. There is a fine monument to Winkelried at Stans, in Unterwalden.

Towards the middle of the fifteenth century there were eight cantons joined in union, and such was their power that they succeeded in getting the better, not only of the Austrian Hapsburgs, but of Charles the Bold, Duke of Burgundy, who harassed the west side of Switzerland nearest to France. At last the unity and bravery of the Swiss succeeded in making their independence of the emperor formally recognised, though in name they were attached to his dominions till the Peace of Westphalia, in 1648, which ended the Thirty Years War.

#### **THE SWISS REFORMERS AND THEIR ENGLISH FRIENDS**

Switzerland had its own Reformation about the beginning of the sixteenth century. Large numbers of the people listened to the teaching of the reformer Zwingli and others, and left the Church of Rome. Unhappily, bitter feelings between the Roman Catholic and the Protestant cantons followed, and there were long civil wars before religious freedom was gained.

At Zürich are to be seen many letters from eminent persons of Reformation times, which show how much intercourse and friendship there was between the English and Swiss in those days. Especially interesting to us are those of Lady Jane Grey, when a studious girl of fourteen, to one of the Swiss divines. She translated part of one of his books into Greek, for a Christmas present to her father, and asks his advice how best to study Hebrew. At the last sad moment in the Tower, when at the block itself, the poor girl took off her gloves and asked that they should be sent to her Swiss friends. Letters from Queen Elizabeth, too, are amongst those at Zürich, encouraging the Swiss cantons and cities in their struggle for liberty.

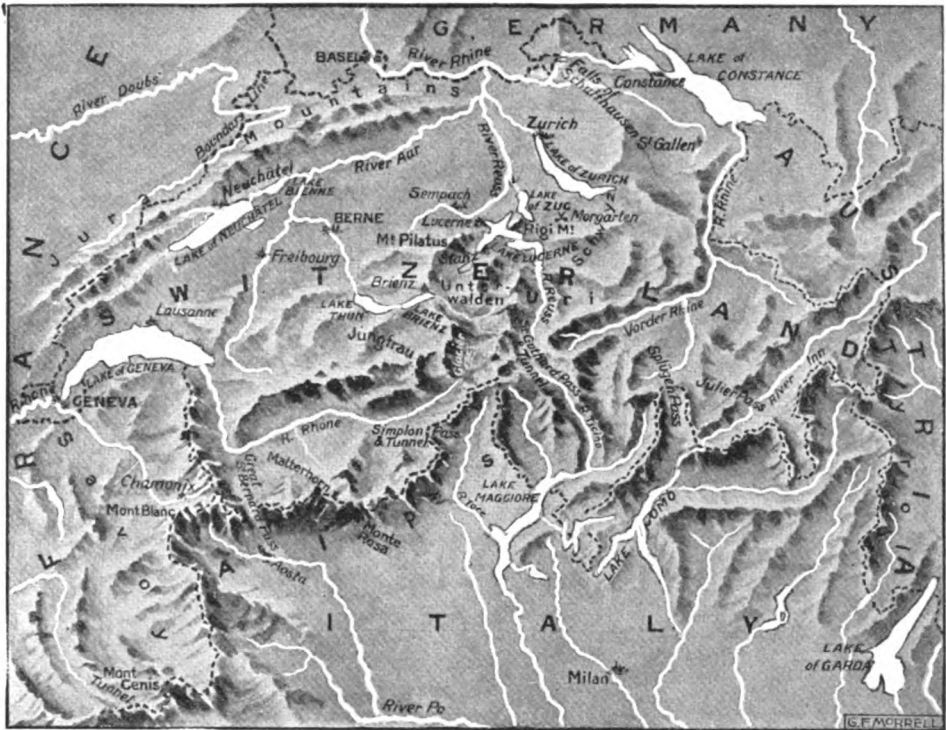
Switzerland shared in the progress of those times when people began to care for study and art. The little country

has reason to be proud of its writers and scholars, and the artists who have left such beautiful work behind for later times in the stained glass, wonderful carvings, and painted tiles still to be seen. Refugees from religious persecution in other countries did much to foster trade and industries, especially the weaving of linen and silk. But, despite all this prosperity, a time of decline set in, owing to various causes.

The deeds of daring and courage which led to the rise of the Swiss people

Revolution, "Liberty, Equality, Brotherhood," spread, echoing over the plain of Switzerland. Hopes ran high for a nobler and happier lot, which were not realised for a while.

When Napoleon turned the whole of Europe about as he chose, Switzerland could not escape. French armies—often fiercely resisted—passed through the cities, across the plain, over the snowy mountains at will. Napoleon made grand roads—that over the Simplon Pass is a wonder of the world—as



This picture-map of Switzerland shows us, at a glance, what the country is like. We see it as though looking down from a lofty airship. All over the country rise the great mountain peaks, and in between are the beautiful lakes and winding rivers. Other pictures of Switzerland are given on pages 2512 to 2515, 2162, 2876 and 2877.

spread their military fame over Europe, and Swiss soldiers were eagerly sought after, and hired for pay to fight in other armies, especially in France. This was bad for the independent nation.

Again, the influence of the despotic Louis XIV. spread over Switzerland as it did over Germany, and the spirit of absolute rule led to the peasants being ground down and deprived of their rights, while the governing classes indulged in luxury. There were many grievous risings, and the country was in a sad plight when the cry of the French

Cæsar had done centuries before, and seized Swiss money and treasures. Then Napoleon turned the country into the Helvetic Republic, under his own eye. The Swiss naturally hated the pounding of the cantons into one state, and the old spirit of bravery and resistance flashed out again and again.

But it was not till after the Battle of Nations at Leipzig that the weight of Napoleon's hand was removed, and the Swiss were far from satisfied with the arrangements made at the Congress of Vienna. Many changes had to be lived

through in the years of the nineteenth century before the twenty-two cantons as we see them to-day settled down to a federal union, perhaps the freest and most representative in the world.

#### HOW SWISS CHILDREN ARE TAUGHT TO BE CLEVER WORKERS AND GOOD CITIZENS

The Swiss believe that "education alone makes free," and their arrangements for teaching are such that they reach to the poorest child in the most remote valley, thus fitting all to take part in the universal voting by which the country is governed. Pestalozzi was one of the great leaders in improving education, and his influence has spread far beyond Switzerland. Great attention is given also to teaching trades of all kinds, and since the introduction of machinery Swiss industries have increased marvellously, in spite of want of coal and a sea-coast. The water power in the leaping torrents from the mountains is turned to use in saw-mills and other factories, and early last century in the cloisters of the famous St. Gall Monastery arose the hum of spinning, and in Zürich and the neighbourhood the cotton and embroidery manufactures now so famous all over the world began. The production of silk goods holds its own at Zürich and Basel, and at Neuchâtel and Geneva are made watches and musical boxes.

All round the borders of Switzerland, the trains now bring in the coal and raw materials needed by the industrious country, and carry away its finished work. Switzerland has also to obtain from abroad much grain, as well as coffee, rice, eggs, and other foods.

#### RAILWAYS THAT RUN UNDER THE MOUNTAINS AND ABOVE THE CLOUDS

The lines that pass on into Italy depend on the wonderful tunnels that have been made through the masses of the Alps. We read on page 2392 of the Mont Cenis Tunnel in the French Alps. The St. Gothard Tunnel is rather longer, and the Simplon Tunnel is twelve and a quarter miles long. The engineering of all these Alpine railways is most wonderful, not only in the matter of tunnels, where workmen starting from the two ends meet in the middle of the mountain, but also in the loop railways, and the numberless mountain lines that climb over passes, and up steep inclines to heights often above the clouds.

It is the tourists, the visitors "come out to play," who use these lines chiefly; by the railways they can reach places hitherto almost inaccessible, and enjoy the fine air and the magnificent walks and views, and can climb higher up if they have the strength.

It is delightful, too, to get a peep into the life of the mountain folk, to see them taking charge of the great herds of brown and cream cows, with their tinkling bells; making cheeses in the little huts; carrying down an immense weight of them to sell in the markets below. It is touching to notice how every little scrap of land is made the most of, and how the little bits of hay are collected in a net, and carried to the loft to be stored for winter use. For, as the cold and snow come on, the cattle are driven down from the heights when there is nothing for them to eat; and there is much lowing and jingling of bells as they make their way down.

#### HOW THE NATIONAL CROSS OF SWITZERLAND BECAME THE SYMBOL OF MERCY

A large trade in condensed milk is carried on in Switzerland, and the milk of Swiss cows is also used in chocolate-making. Swiss chocolate is particularly good. In the winter many of the mountaineers carve little animals, chiefly bears, like those to be seen in the pit at Berne, and little chalets such as they live in themselves, with stones on the roof, to keep it on in the stormy winds. They are also very clever in making flowers and other delicate things out of ivory. All these things and many made in factories, too, render the shops very tempting wherever tourists gather, especially in Berne, and Zürich, the largest town in Switzerland, Lucerne, and Geneva. It was in Geneva that a great meeting was held to try to arrange matters between the nations so as to lessen the horrors of war. It was then declared that nurses, and doctors, and ambulances must never be fired upon, and they all take as their badge of safety the cross which we see fluttering so gaily over all the public buildings of Switzerland as its national flag.

Since the Congress of Vienna, Switzerland has been a neutral or peace country. In war time she sides with no one, and only trains her sons to be ready to defend homes and dear ones if need be.

The next story of Countries is on 3011.





## HOW TO STUDY THE WEATHER

WHEN we think of the changes in the weather day by day, it seems a most difficult thing to tell what it is going to be like to-morrow. Yet, in the newspaper every morning, we can read a forecast of what is going to happen during the day, and, although we cannot all have the wonderful instruments with which clever men foretell the weather, it is possible to construct a few devices with very little trouble.

In order to find out the kind of weather which is coming, it is necessary to discover whether the air around us is damp or dry. If there should be a great deal of moisture in the atmosphere, clouds, made of countless particles of moisture, are readily formed, and rain is likely to result. A piece of ordinary brown seaweed, hung up on the wall of a room, will tell us whether the air is damp or dry. When there is little moisture about, the weed will be crisp and hard, but directly rain is coming it will be damp and flabby.

Another important matter is the weight of the atmosphere. Over every object in the world there is a great column of atmosphere, so to speak, miles in height. We get so used to the pressure that we do not notice it, but it is there all the same.

Now, the weight of air varies from time to time, because when the atmosphere is very moist it is lighter, while when dry it is heavier. On this account it is very necessary that we should know the changes in

CONTINUED FROM 2872

the pressure of the air. The barometer is an expensive instrument; but, with a glass jar and an

oil-flask, we may make a device which will tell us a good deal about the weight of the air. Fill the jar about half full with water.

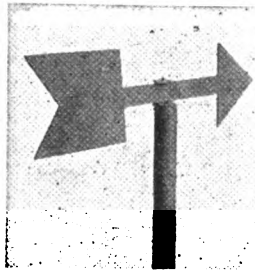
Now place the empty oil-flask neck downwards into the water in the jar, as seen in picture 2. The water will rise up some distance in the flask. From day to day the height of the water will vary, and, indeed, it will be responding to the pressure of the atmosphere on the water in the jar, so that when the air is dry, and therefore heavier than usual, the water will be higher than when the atmosphere is moist and light. Thus we may expect fine weather when the water in the flask

is high, and storms when it is low.

Animals are very sensitive to weather conditions. When it is likely to keep fine, leeches will remain quietly in the bottom of a jar, while at the approach of a storm they will become very restless. A frog in an

aquarium keeps to the bottom of the water if the weather is going to be stormy, while in fine weather he will enjoy coming to the surface.

It is always interesting and useful to know which way the wind is blowing. In some parts of the United States, when the wind is in the west, it will not keep fine for very long, while an east wind, as a rule, means dry weather. It is quite easy to cut out a weather-vane, in the shape of an arrow, from a piece of flat wood, as seen in picture 1. If



1. Weather-vane cut in wood



2. Barometer made of a glass jar and an oil-flask



3. Rain-gauge made of a bottle and a funnel

you drive a nail exactly through the centre of the shaft, the vane may be fastened on to a broomstick, and the pole then fixed in an open place, such as the top of a summer-house, or from the upright branch of a tree. By watching the movements of the sun, or with a compass, we can soon find out which is the east, and the west, and so on.

It is easy, also, to keep a record of the rainfall. With a narrow-necked bottle, holding about a quart, and a funnel with an opening the same size as the bottom of the bottle, we can make a very simple rain-gauge. The end of the funnel is put into the neck of the bottle, and the whole thing left to stand in the open, perhaps on a lawn. The rain-gauge must be left out night and day, of course, and at the end of twenty-four hours you must look and see whether any rain has fallen or not—of course, emptying the bottle each time. The bottle used should be one with a flat bottom, and not one with a raised bottom inside. If, after a storm, there is an inch of rain in the bottle, that is the depth of rain that has fallen.

But it may not, perhaps, be easy for you to get a bottle and a funnel exactly the same width, and in that case it will be more difficult for you to measure the rainfall. It is clear that if we use a funnel 12 inches wide, catching the rain falling over a width of 12 inches of space, and then measure its depth in a bottle 6 inches wide, the depth in the bottle will be twice the real depth of the rainfall, because the width of water falling would be twice the width of space for it to fall into, and so the water would rise higher instead of spreading itself out. But if the top of the funnel is not the same

width as the bottle, all we have to do is to compare the width of one with the width of the other, and do a little sum. We have to find out how one area compares with the other. There is a rule regarding areas which may look a little difficult, but which is quite easy. It is:

$$\text{Area} = \text{square of diameter} \div 0.7854.$$

This means that to find the square inches within a circle we must multiply the diameter of the circle in inches by itself, and multiply the result by 0.7854. Now, suppose that the bottle is 3 inches in diameter inside. We multiply 3 by 3, giving us 9, and then we multiply 9 by 0.7854, and the result is 7.0686. The fraction is so small that for our purpose we may disregard it, and say that the area of the surface of the water in the bottle, or of the bottom of the bottle, is 7 inches. Now, let us suppose that the mouth of the funnel measures 6 inches across. We multiply 6 by 6, giving us 36, which we multiply by 0.7854, and get for answer 28.2744. This is just a very little more than 28 square inches, and we may count it as 28 square inches.

Now, if rain has fallen 1 inch deep in the bottle, we have to find what it would be in a bottle of the same diameter as the mouth of the funnel. To do this, we multiply 1 inch by 7, and divide it by 28. This gives us one quarter of an inch, so we say that a quarter of an inch of rain has fallen. Whatever the diameter of the bottle and of the mouth of the funnel may be, we can find the amount of rain by following these rules, and if we know the size of a garden or of a field, or even of a county, we can tell, by working it out, what *weight* of water has fallen over the whole area. The rule to work upon is that 27½ cubic inches of water weigh one pound.

## A CLEVER AND AMUSING WORD GAME

THE game of doublets is an interesting word game that gives plenty of scope for skill and ingenuity, and enables us to exercise our memories and to make good use of our knowledge of words. Two words are chosen, each containing the same number of letters, and the words should be either of quite opposite meaning, as wrong and right, black and white, good and evil, rise and fall, and so on, or they should stand for things quite different from one another, as wood and iron, butter and cheese, soap and grease.

The game is to change one word into the other by changing only one letter at a time, and making a chain of words between the doublets. Two or three examples will make the method clear.

|       |      |      |      |       |
|-------|------|------|------|-------|
| black | tame | beef | cat  | black |
| slack | time | been | cot  | block |
| stack | tile | bean | dot  | clock |
| stalk | wile | beak | dog  | click |
| stale | wild | peak | more | chick |
| shale | shoe | perk | lore | chink |
| whale | shot | pork | lose | chine |
| while | soot |      | loss | whine |
| white | boot |      | less | white |

It will be seen by these examples that only one letter is altered in each word to make the next, and every change makes an actual dictionary word. It is not allowable to make a change of a letter that will produce something that is not a real word. For instance, we might have changed beef into pork like this: beef, boef, boek, bork, pork. That, of course, would be wrong, as no such words as boef, boek, bork, exist.

Then the transformation from one word to the other must be made with as few changes as possible. In changing from black to white we might have proceeded like this: black, block, clock, click, chick, thick, think, thine, whine, white; but here we make eight words in between, and not more than seven are needed.

It must, of course, be understood that in changing one letter to make a new word in the chain, the substituted letter must occupy exactly the same position in the new word that the discarded letter did in the old word. Thus we can change bean into bran, but not into barn, for e being the second letter in bean, r must be the second letter in the new word, as it is in bran.

## A LITTLE VEGETABLE GARDEN

### WHAT TO SOW AT THE END OF MARCH

DELIGHTFUL as it is to have gay, sweet-smelling flowers in our garden, many of us are perhaps quite as much interested in growing vegetables.

March is one of the most important months of the year as regards vegetables. Think of it; all the vegetable seeds are waiting to be sown, and in many cases the early-sown seed produces the best crops, although there are certain tender subjects that must not be sown out of doors during this month; the scarlet runner beans, beet, limas, and dwarf French beans must wait for some time yet.

What shall we sow in March? Peas, tomatoes, Brussels sprouts, cabbages, cauliflowers, onions, lettuces, leeks, and radishes, some may with advantage be sown during the month, and if we like we may make two or three sowings of each by sowing part of the packet now and the remaining part a fortnight or three weeks later. This should certainly be done in the case of lettuces, radishes, and cress, or we shall have our whole crop ready to be eaten all at once.

Thin sowing is one of the most important things to remember, especially if we mean to grow strong, fine crops. It is easy to understand this; if a little plot of ground has food and nourishment enough to grow one hundred plants, it stands to reason that, if it has to divide this among three or four times that number, the little things will be partly starved.

It is a capital plan to mix a little dry sand or soil with the seed, and then to sow soil and seed together; this is especially to be recommended when we are dealing with *small* seed, for, of course, it would be quite unnecessary to mix sand or soil with peas or beans, or other large seeds. The exception to thin sowing is cress seed; that is always sown quite thickly.

A thing to be really proud of is to be able to grow a fine crop of onions; any child who does this has a right to be proud of the feat. They are by no means difficult to grow, and they are the most interesting of all garden crops. Let us consider them a few minutes. They are different from most of the vegetables we eat. They are bulbous plants, and, if we think of it, they make their bulb very quickly; much quicker

do they come to full growth than most plants of this same nature. Then, too, there is something pretty and full of character in the appearance of those straight, tube-like green tops growing in a narrow bed, narrow to enable us to reach half over from one side, and the other half from the other, so that, when weeding or thinning out the little plants where they are growing too thickly, we do not tread more than can be helped on the actual bed.

Before the seed is sown, the ground should be deeply dug and manured if necessary. But onions like a firm bottom, so that the bed should be well *treadden* all over before the seed is sown, and the surface lightly raked over. Mix the seed with a little sand, for it is important to sow thinly, and make drills across the bed to receive it; these drills may be made with a thick stick, but the best thing is to fix three pegs in an old wooden rake, out of which the teeth have disappeared. The drills should be nine inches apart, and the seed may be covered with a quarter of an inch of soil; this may be done by raking back the little ridges that were thrown up when the drills were made. Finally, when the seed is in the ground and covered, the surface soil can be made firm with the back of a spade.

Onions like to grow in good, rich soil, and the manure should have been applied before this. They also like a warm, sunny position, not shaded by overhanging trees.

Sow the peas thinly; many people sow them in trenches four inches deep, as they withstand a dry time during summer better than on the level, and the rainfall, or water otherwise given, is of greater benefit, but the ground should be dug for a considerable width and the trench made afterwards.

Potatoes, carrots, parsnips and oyster-plants may also be planted at the end of the month, or earlier in the southern parts of the country. But the tomatoes, cabbages and cauliflowers are started in the house, in shallow boxes, and are carefully tended and transplanted until the weather is sufficiently warm. Six weeks later we may set out the little plants. Lettuces are best started in this way also, or in cold frames.

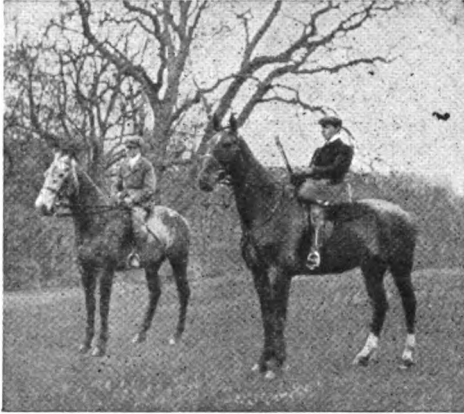
## A GOOD GAME TO PLAY ON A TRAIN

HERE is an interesting game to play when we are travelling. While the train is standing in the station all the players look about, and take as much notice of things as possible. Then, when the train has left the station, and five minutes have elapsed, we take it in turns to name any object that

we saw at the station. Of course at first this is very easy, and we can go round and round again, each player naming one object which no other player has mentioned. But as the game goes on, it becomes harder and harder to think. The one who is last able to mention an object wins the game.

THE NEXT VEGETABLE GARDEN IS ON PAGE 3175

# HARE AND HOUNDS ON HORSEBACK



The hares waiting in readiness for the signal to start



The hares laying the trail of paper up a woodland path.



Some of the hounds, mounted ready for the chase, waiting while the hares have their ten minutes start.



Here the hares are laying a false trail through a gate.



A hound has jumped a ditch to follow the false trail.

**A PAPER-CHASE** on horseback is a common amusement for a holiday in England during the hunting season, and these pictures show us some of the most interesting incidents in a very successful run across country by boys and girls of from six to sixteen years of age.

All who possess a mount of any sort, from a hunter to a Shetland pony, or even a donkey, may be invited to join in the game, which is a very similar one to the paper-chase run on foot.

The two hares carry big satchels crammed with white paper, torn up into little pieces, and for a mounted paper-chase the trail must be laid as thickly as possible, in order that the hounds may be able to see and follow it at a good pace. The hares are given ten minutes start, to allow them time to lay a few false trails at places which they have carefully selected

# A HOLIDAY SPORT FOR THE COUNTRY



Hounds following the trail across a shallow stream. Following the trail in and out of a thicket of bushes.



Here we see some of the hounds jumping a fence, passing through a gate, and leaping a ditch in hot pursuit.



In these two pictures the hounds are puzzled because they have come upon places where false trails are laid beforehand. The course should be about six miles long, and should be free from dangerous ditches or jumps, although low jumps across narrow ditches or over obstacles which can be moved aside to allow the smaller children to pass through, if necessary, add greatly to the excitement and fun. The course should be as varied as possible, and if there are woods a good trail can be laid in and out of the trees for a little way; then a long straight run down a ride, along which the hounds can get a good gallop, whilst a shallow, pebbly bottomed stream to cross makes a specially good feature, and it is rather amusing to lay a part of the trail near the finish in a big sweeping half-circle, for even if the hares are spied by the hounds far ahead, or a few yards to one side, they must be followed by the trail, for no short cuts are allowed.

## THE WAY TO USE A MICROSCOPE

ON page 2319 of this book we read an account of the strange things that we may discover for ourselves by the use of a microscope, that wonderful instrument that opens for us so many obscure pages in Nature's book. We learn there what a microscope is, and we see in the pictures some of the things that a microscope can reveal. Here we shall see how to use the instrument.

In the middle of this page there is a diagram picture of a microscope, and by studying this picture we can see the purpose of the different parts of the microscope. The *tube* or *body* is the long, round portion that is really explained by its name. The *eye piece* is at the top end of the body, and at the other or lower end of the body is the *objective*, or the magnifying glass nearest to the object to be examined. The object is placed upon a *stage*; usually the object is mounted upon a small glass slide or between two small pieces of glass, which are then placed upon the stage and held in position by the help of the *spring clips* seen upon the stage in the picture. Under the stage is a *stage well*, which has beneath its lower end a *wheel of diaphragms*, or a *rotating diaphragm plate*, as it is also called.

The diaphragm plate has in it a number of holes, and the entire plate or wheel can be turned round, so that any one of the holes desired may be at the bottom of the well, and the light reflected from the *mirror* below is made to shine through the hole in use. The reason why these different holes are provided, is because sometimes we may want to have more light shining upon an object, and sometimes we may want to have less light than at other times. By turning round the diaphragm wheel we can bring into use a hole that will let through just the quantity of light that we want.

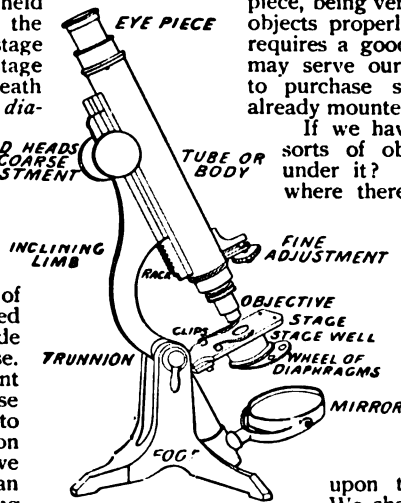
Now let us turn to the frame of the microscope and see how the parts there are named, and learn their use. There is the part marked *foot*, which is really the base with three feet. This supports the body and every other part of the microscope. Next we have the *trunnion*, which is the place where the frame that carries the tube is fixed to the foot or base. The frame swings in the trunnion, and by loosening the screw at the trunnion we can swing the body of the microscope into a more inclined, or into a more erect position. Next we have the *inclining limb*, which rests in the foot at the trunnion, and which has two *milled screw-heads*. By turning these screw-heads we can lengthen and shorten the distance between the eye piece and the object, so as to bring the object we wish to examine into better *focus*, which means to bring it

so that the eye can see it plainly, and not merely as a blurred outline. But these screw-heads which work the body up and down in the *rack* do not provide a fine enough adjustment to be quite right. Therefore there is, right in front of the body, a *fine adjustment screw*, which makes it possible to get exact adjustment so as to render the object under examination quite distinct, so that we can see clearly the hair on a fly's wing, or the little swimming things that live and fight in a drop of stagnant water.

Having seen the use of the different parts of a microscope, we may now learn something about the objects that we may desire to see magnified. Not many objects can be seen properly without some preparation and suitable mounting. The usual way to mount the objects is to put them between two small pieces of glass, cut to a suitable shape, the lower piece of glass being of ordinary thickness, and the upper piece, called the cover piece, being very thin. But to mount objects properly in microscope slides requires a good deal of skill, and it may serve our purpose much better to purchase second-hand specimens already mounted by experts.

If we have a microscope, what sorts of objects should we put under it? All around us everywhere there are countless things that will make us marvel as we see them with the sharper eyes that the microscope can lend us. We can go into the garden, or into the hedgerows, and collect some insects, including a spider. The insects can be killed with a drop of chloroform, and then put upon the microscope stage.

We shall see great jaws, feet, claws, eyes that we never suspected to exist in anything so tiny. The spiders are really terrible. There is scarcely a tool or a weapon made by man that has not been anticipated in the structural form of Nature's tiniest creatures. We find many insects provided with what look like chisels, saws, scissors, and files. If we would see the beautiful colours that Nature gives to some of her creations, we must take the wings of some butterflies and let the light from the microscope mirror strike the glorious scales sideways; then we shall have a picture in colour that the most brilliant painter could not equal. Animate and inanimate Nature provide a wealth of material for our wonderment and instruction. Even the golden pollen dust that we rub off the flowers with our fingers is seen under the microscope to be of globular, elliptical, and other shapes, beautifully marked with dottings and ribbings. The pollen of each flower differs from that of all others, and each has its special interest.





# The Child's Book of FAMILIAR THINGS

## WHAT THIS STORY TELLS US

THE grass that makes the countryside so beautiful, and provides the soft green carpet that we delight to walk upon, is so plentiful almost everywhere in the world that we think little about it and the many different forms that it takes. We see some of the more common wild grasses that grow in America in the part of this book that begins on page 1331, and in the following pages are some more pictures of familiar American grasses, which will help us to know these grasses by name when we see them growing in the fields or by the wayside. Grasses are very hardy, and in a fight for life between trees and grasses, when man takes no part, the grasses win the day, as shown by the vast treeless prairies in our land which were formed when the human inhabitants were few. In another part of this book we find pictures of most familiar American trees with their leaves and flowers.

## SPLENDOUR IN THE GRASS

WATER, it has been prettily said, is the eye of the world.

Grass, let us add, is the soft mouth of Nature's face. It is only with water and with grass that the earth can smile, that the austere sadness of her countenance breaks up and gladdens with laughter. When the wind moves across the ocean or passes over the tall grasses, the face of the earth changes; she forgets her antiquity; she loses all count of the tragedies and desolations which have strewn her fields since the dawn of creation; she becomes like a babe in the cradle, sunning over with her smiles.

Homer sang of "the innumerable laughter of the sea," and David of the laughter of the cornfields. There we have the eye and the mouth of the world.

The grass of the earth has inspired men with gloomy ideas rather than joyous. We can think of five or six sad sayings concerning grass for every one that is happy. "In the morning it flourisheth and groweth up; in the evening it is cut down and withereth." "As for man, his days are as grass." "All flesh is grass," and so on. Even a poet like Wordsworth hints that only a child can receive the full joy of it:

Nothing can bring back the hour  
Of splendour in the grass, of glory in the flower.

But joy is the note of grass. How a little patch of it, even when shaven and shorn, breaks up the grey sadness of cities! How good it is to get off the pavements and strike across the fields! How pleasant to escape from

CONTINUED FROM 2842

four walls and rest our eyes upon the little lawn in our garden!

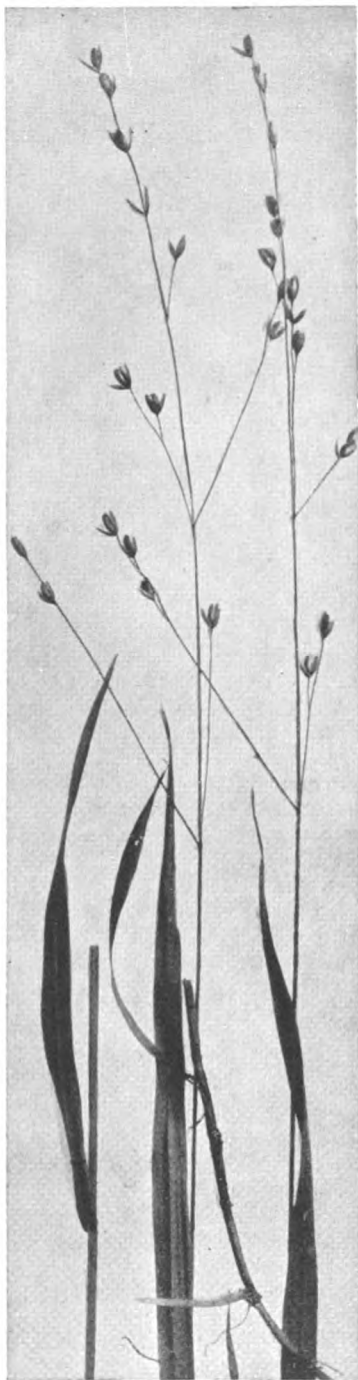
And if these things be pleasant and good, what shall we say of the great summer pageant, when all the valleys stand high with waving grass, and the whole face of Nature flickers and dimples and overflows with the ripple of its joy? Then it is that we feel the undying childhood of this old world, then it is we realise the eternal infancy of Nature.

Take into your hand as much as it will hold of bird-seed. Look at those minute specks—white, brown, grey, and black, some quite round, others three-sided, and some no shape at all. Feel how they run like sand through your fingers. How light they are, these myriad grains! There are millions and millions and millions of these tiny seeds, which feed the birds of the earth.

The fields of the earth, standing thick with grasses, are full of these joyous grains. The wind blows, the grass waves, the little seeds stick to their nests. But the gleaner comes, and the seeds are shaken out like a waterfall—the fields empty themselves into the granaries of men. But there are millions of acres where no man comes, and where the grasses are filled with seeds, more in number than the stars; they are even as the sand on the seashore; and from the earliest days of the earth they have come down to us with the message of the waving grass that "God's in His heaven, all's right with the world."



## SOME MORE FAMILIAR GRASSES



WOOD MELIC

GROWING IN SHADY PLACES, MAY & JUNE

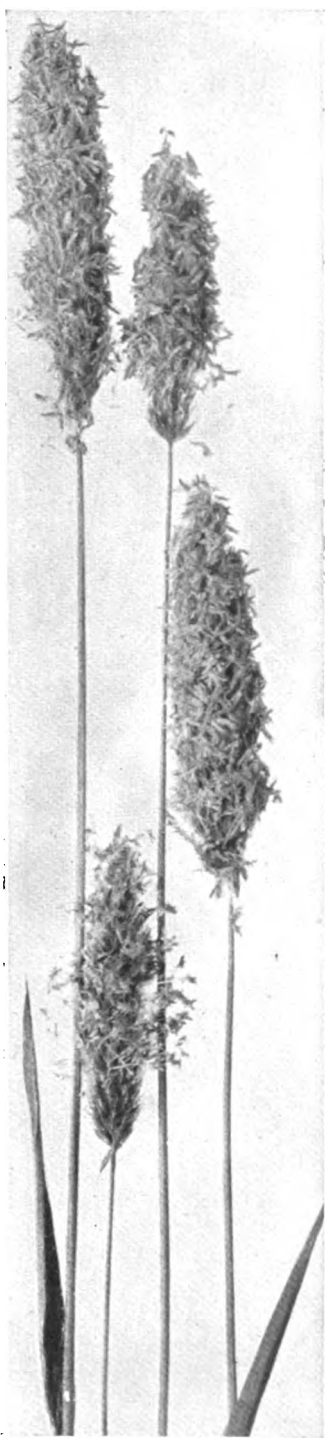


FALSE OAT

GROWING ON ROADSIDES, FROM JUNE ONWARDS

Wood melic has fewer flowers borne on its stems than any other grass. We can see this if we compare its picture with those of the other grasses. As in the case of false brome, shown on page 1338, the false oat gets its name from the doubt which has arisen as to whether it is an oat grass or not. It is generally, however, considered to be one.

The photographs on these pages are by Henry Irving.



MEADOW FOXTAIL

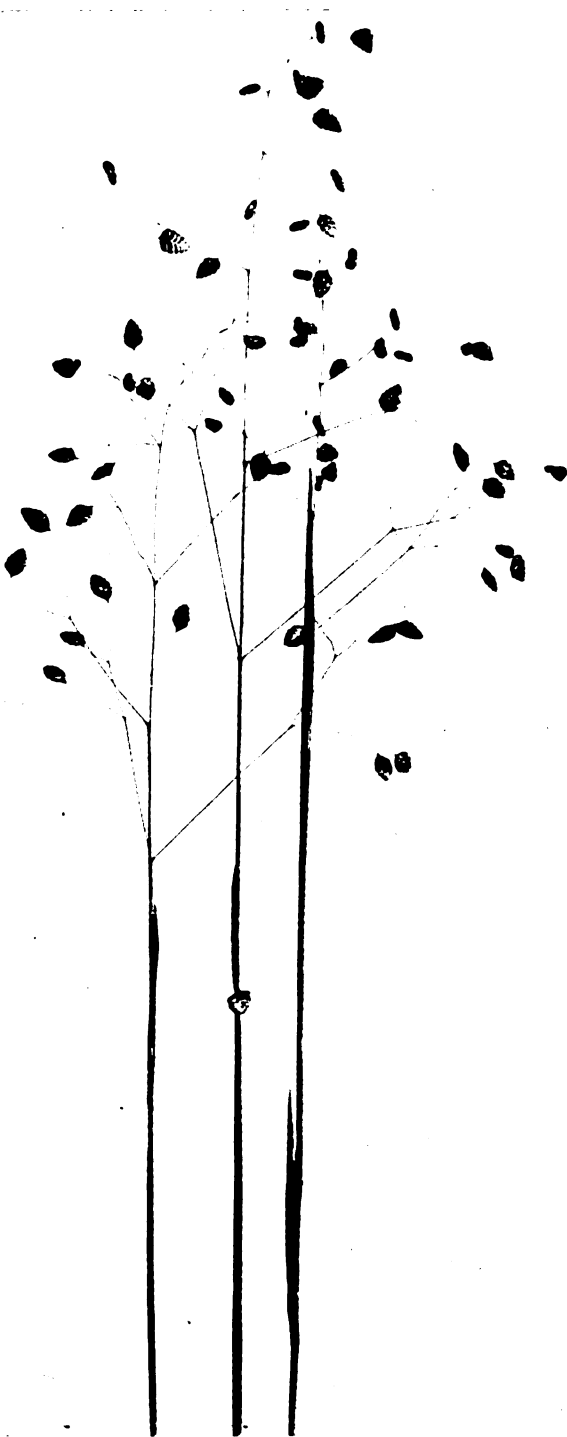
GROWING IN MEADOWS, FROM MAY



WILD OAT

GROWING IN CULTIVATED FIELDS, IN JULY AND AUGUST

In some parts of the old country, foxtail used to be called "guinea grass," because English children, and sometimes grown-ups, too, used to collect the heads and sell them for a guinea a bushel. From the wild oats have sprung the improved or cultivated sorts with which oatmeal and other articles of food are now manufactured.



COMMON QUAKING GRASS

FOUND ON DOWNS & POOR PASTURES, IN JUNE & JULY



SHEEP'S FESCUE

FOUND ON DOWNS & MOORS, IN JUNE

Quaking grass has this curious name because it quakes, or trembles, in the slightest breath of air, when all the other grasses are standing quite still. As we may judge by its name, sheep's fescue is a favourite with sheep. It grows in rough places which would otherwise be barren and afford no food for flocks. Fescue means "stalk."



**TALL FESCUE**

**GROWING IN MOIST MEADOWS, IN JULY & AUGUST**

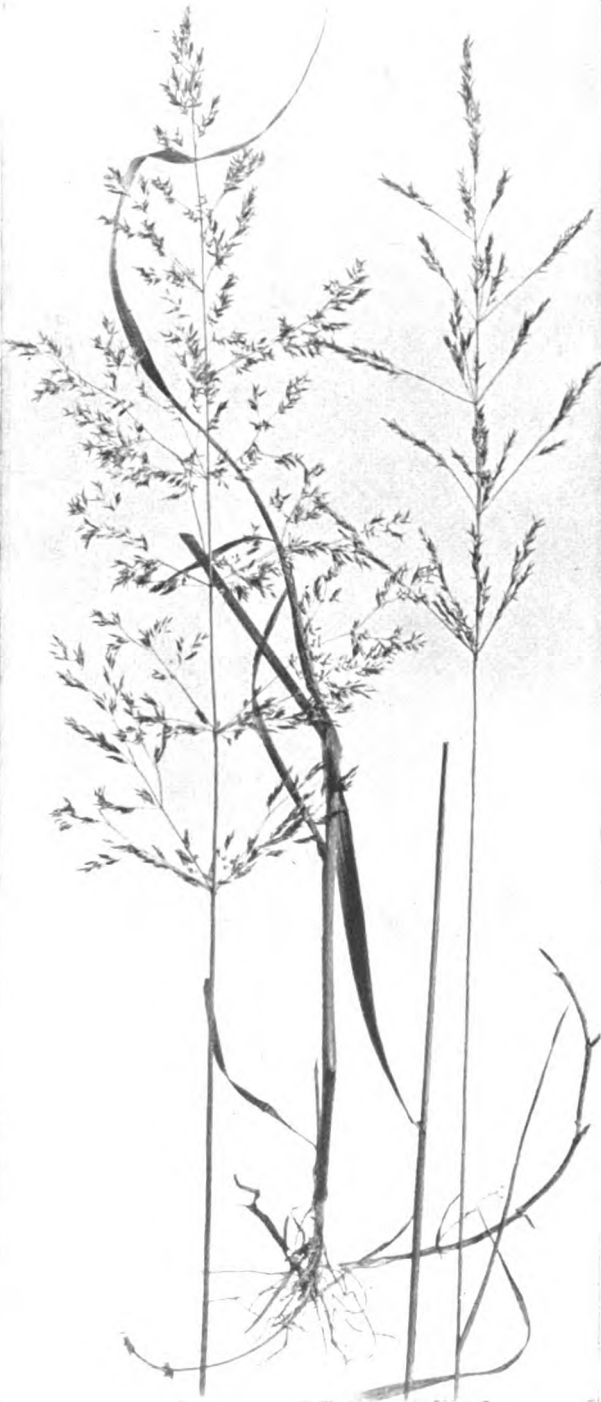
Tall fescue grass does not make very good food for cattle, but it is useful in another way, for it grows so tall that it can be cut down and used as a litter, or bed, for animals.



**SMOOTH MEADOW GRASS**

**GROWING IN MEADOWS, JUNE & JULY**

Smooth meadow grass is one of the lime-loving grasses. Hence it is to be found often in company with crested dogtail, shown on page 1335.



**MARSH BENT GRASS**  
GROWING IN DAMP PLACES, FROM JULY ONWARDS



**BROWN BENT GRASS**  
FOUND ON PEAT MOORS, JULY

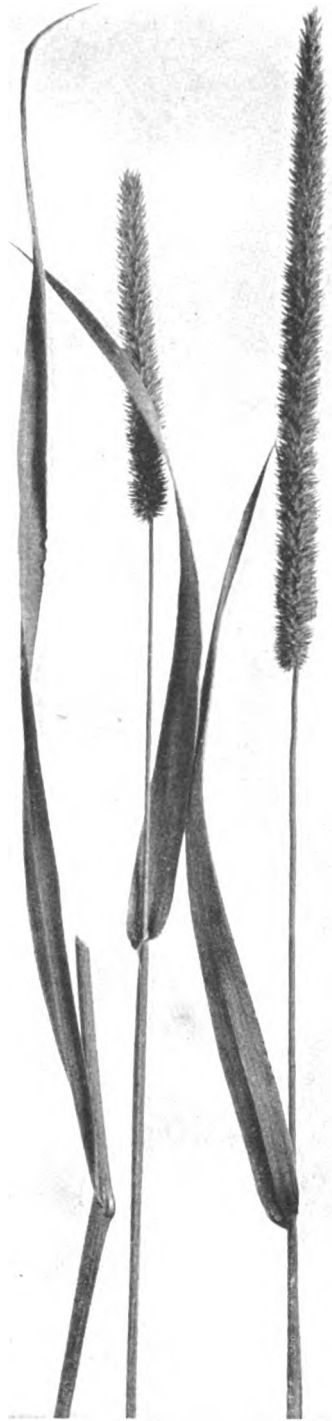
Bent grass is a very hardy grass—that is to say, it is difficult to kill. For this reason we find that the grass which grows by the roadside, or where there is much traffic, is largely bent grass. It is also a useful grass to plant on sandy hill slopes where otherwise water is likely to wash the earth away.



COMMON REED

GROWING BY PONDS AND MARSHES, IN SEPTEMBER

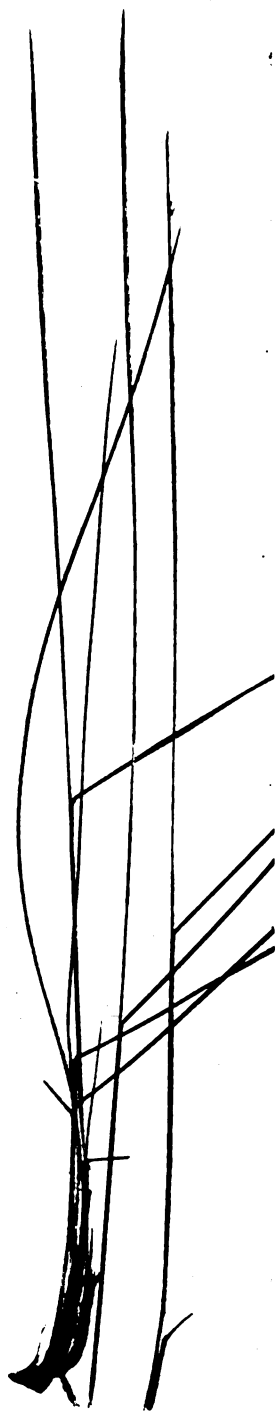
It is easy to tell reed grass from others, because it is much later in flowering than the other waterside loving grasses. When we look at common catstail, we can see that there is no other grass quite like this, and that it quite deserves the name of catstail. You can hardly fail to notice it as you pass through the fields.



COMMON CATSTAIL

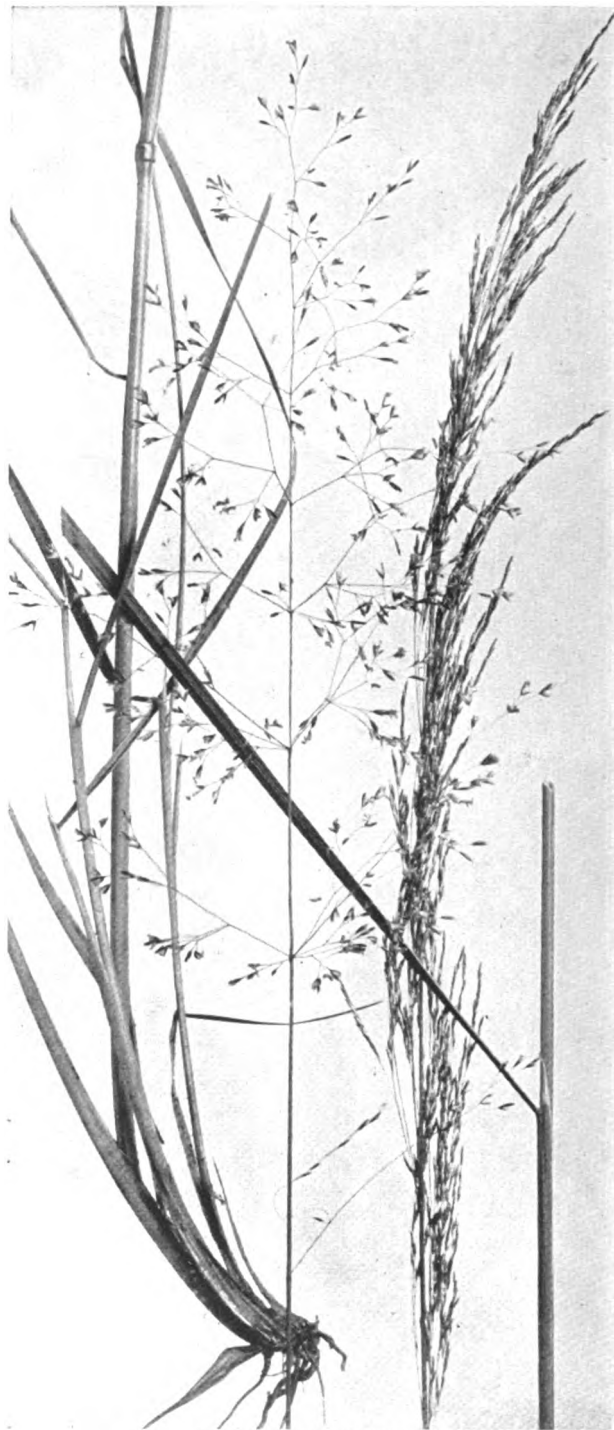
GROWING IN MEADOWS, JULY & AUGUST





**MAT GRASS**  
GROWING ON WET MOORS, IN JUNE

Mat grass, sometimes called marram, meaning "sea-straw," is found on sandy "dunes" or "denes" by the sea-shore. In Northern Africa, where it grows taller and thicker than elsewhere, it is cut and used for the manufacture of paper. Tufted hair grass is generally to be found in the company of floating foxtail, shown on page 1334.



**TUFTED HAIR GRASS**  
GROWING IN DITCHES AND WET PLACES, IN JULY

THE NEXT PICTURES OF FAMILIAR THINGS BEGIN ON PAGE 3037

# SOME WELL-KNOWN BUTTERFLIES AND MOTHS



Butterflies and moths are among the most beautiful creatures in all Nature, and as they flit in the brilliant sunshine their gay wings glint and flash in the light, and add wonderfully to the glories of the country. Here we see some British butterflies and moths, with a few of their caterpillars.

- |                             |                             |                                |                           |                               |
|-----------------------------|-----------------------------|--------------------------------|---------------------------|-------------------------------|
| 1. Silver-washed fritillary | 5. Peacock butterfly        | 9. Camberwell beauty           | 13. 13A. Privet hawk moth | 17. Chiffchaff blue butterfly |
| 2. Swallow-tail butterfly   | 6. Purple emperor butterfly | 10. White admiral butterfly    | 14. 14A. Goat moth        | 18. Puss moth                 |
| 3. Red admiral butterfly    | 7. Painted lady butterfly   | 11. Large white butterfly      | 15. Scarlet tiger moth    | 19. Kermish glory moth        |
| 4. Small copper butterfly   | 8. Orange-tip butterfly     | 12. 12A. Hummingbird hawk moth | 16. 16A. Eyed hawk moth   | 20. Buff-tip                  |
|                             |                             |                                |                           | 21. Mague moth                |

Butterflies and moths both belong to that order of creatures which scientists call lepidoptera, a long word that means simply "scaly-winged," and the name is given because their wings are covered with scales, or tiny feathers, that appear to the naked eye like fine dust. Butterflies and moths differ very little from each other. The butterflies fly mostly by day and the moths by night, but there are exceptions in both cases.







## BUTTERFLIES AND MOTHS

EVERY boy and girl can have a year of fascinating study as the result of a short ramble in the garden. We can trace the butterfly or moth from the time it leaves the egg, through all its changes, until from its egg another butterfly or moth is born. With some, the life-history does not take a year to run its course, but if we get a moth or butterfly whose chrysalis lives from the end of autumn until the beginning of summer, we shall have provided against the dull winter months. When we have watched the course of life through which these insects pass, we shall have been witnesses of one of the most wonderful series of events in Nature.

The life of the bee and the life of the ant make the wisest men wonder. But the deeper we go into the mysteries of Nature, the more we learn—the more we realise how ignorant we really are. We know all that happens in the life of the caterpillar, from the egg to the fully developed butterfly, but we do not know why it happens as it does.

Here we have a similar course to that run by the bee and the ant. First there is the egg; next there is the caterpillar, or larva; after that the chrysalis, or pupa; and finally the perfect insect with wings, which is called the imago. The larvæ of the bees and ants are protected until the perfect insect appears. The bee is in

CONTINUED FROM 2950



its cell; the ant is underground, watched by full-grown ant's, who are tender nurses as well as bold defenders. But the case of the caterpillar is different. Born from a tiny egg, it is so small that, in some cases, we cannot tell for a day or two whether the eggs have actually hatched. We have to use a magnifying glass, and breathe on the mass of tiny life, if the day be cool, to stir it into activity, and so make sure that the little caterpillars are born.

There could not be a more helpless thing than the caterpillar is at this stage. If we kept some caterpillars in a case, and a few ants got into the case, they would soon eat up all the young larvæ. By the way, they will do the same with big caterpillars, too, if we are not careful to have a box or case with holes too small to give the ants admittance. A small boy who left three lovely caterpillars safe and sound feeding on leaves in a big match-box overnight, sat down and wept in the morning when he found what had happened. The ants had made their way into the box, and had eaten two of the caterpillars, and the moment the little owner opened the box they began to pull the remains of the third caterpillar out after them, to carry it off to their nest. That serves to remind us how defenceless the poor caterpillar is. Yet in this weak and helpless state the caterpillar must live its life, or we

could have no butterflies to brighten the gardens and the woods; no gorgeous moths to make the country lovely. Might it not seem as if Nature had for once made a mistake in exposing one of her families to the perils which the caterpillars run, with so many enemies—birds, animals, and insects—ready to pounce upon them and gobble them up? That is the puzzle which wise men have studied.

Nobody can say positively that he knows exactly why the life of the butterfly should run just as it does, but we are able to work out a theory by which it may be explained. Creatures which are born from large eggs are provided with so large a mass of food in the egg that when they emerge they are well developed, and able soon to look after themselves. Birds which are born from tiny eggs are always helpless. Take the strong, healthy young chicken from the big hen's egg, and contrast it with the puny baby pigeon, so helpless and feeble.

#### **CATERPILLARS THAT FEED HEARTILY & SOME BUTTERFLIES THAT EAT NOTHING**

Well, the creature which comes from the small egg must grow big and strong. But as soon as it reaches maturity, and becomes a perfect insect with wings, it wants to lay its eggs. There are many eggs to be laid, and it must have greater strength to supply them than the food of any butterfly could yield if, at the same time, it has to go on growing. Therefore Nature has provided a middle course—the caterpillar stage.

The caterpillar can eat an extraordinary amount of food, whether it be leaves, or the bark of trees, or, in the case of the larvæ of the clothes moth, wool and fur. Butterflies and moths cannot "eat" things; they only sip honey and other liquids. The bodily strength must be acquired by the caterpillar, for some of the perfect insects have so poor a mouth that they cannot take *any* nourishment; their whole life on the wing lasts only about three days, and in that time neither bite nor sup, as people say, is taken by them.

The caterpillar is the great feeder, and that is the fact which winds up our theory. If the strength of the butterfly or moth is to be built up upon what the caterpillar eats, the caterpillar must eat heartily. The butterfly and

moth lay a great many eggs. Now, if all these ran their full course, if they all became caterpillars, and in the end turned into other butterflies and moths, then very soon the world would be deprived of nearly every green thing; the caterpillars would eat all the vegetation off the face of the earth.

#### **THE MAGIC STORY OF THE INSECTS WITH THE BEAUTIFUL SCALY WINGS**

So Nature, while giving the moth and the butterfly power to undergo these marvellous changes, plans that there shall be a period of comparative helplessness in the caterpillar's history lest all plant life should be killed. With these thoughts in our minds, let us now take a nearer view of the magic story of these beautiful insects' lives.

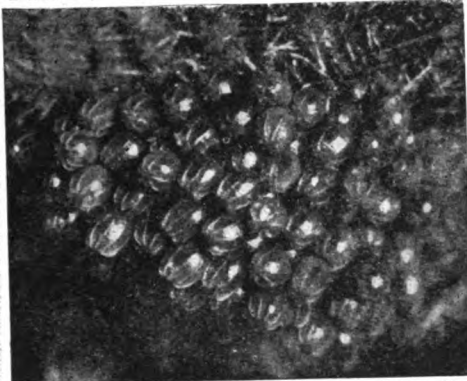
It is not easy to divide the moths clearly from the butterflies. Together they form what are called the lepidoptera order—that is, the order of insects having scaly wings. Instead of being covered with hair, these creatures have their wings covered with the tiniest powdery scales. These scales are of various forms and sizes, and are fixed at various angles to the wings, whose delicate membranes they serve to cover and protect. It is these little powdery scales which, breaking up the rays of light, give the butterflies and moths their lovely shades of colour. Both butterflies and moths are clad in this way, so the distinction does not lie there.

We think of moths as creatures which come out only at night or in the twilight, like the bats and owls. But there are moths that fly by day, and not at night. Night-flying moths are very rare in parts of America, owing to the great number of bats and insect-hunting birds which are on the prowl when darkness sets in and would seize them.

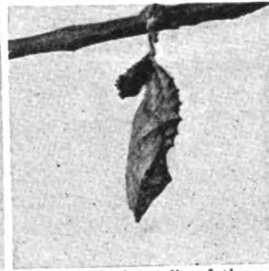
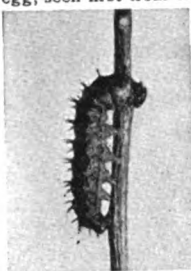
#### **THE WONDERFUL ARRANGEMENT OF HOOK & EYE THAT FASTENS THE MOTH'S WINGS**

Most varieties of moths do fly by night, of course, but these exceptions show that we cannot make the matter of their hours of activity the point upon which to decide whether an insect is a moth or a butterfly. We have to leave it to the naturalist to decide. He is able to show us that the two pairs of wings in the moth are fastened together by a beautiful little arrangement of hook and eye; the hook on the inner margin of one wing

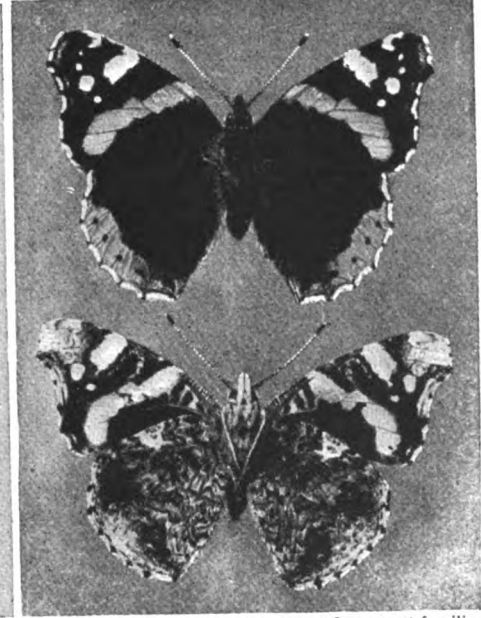
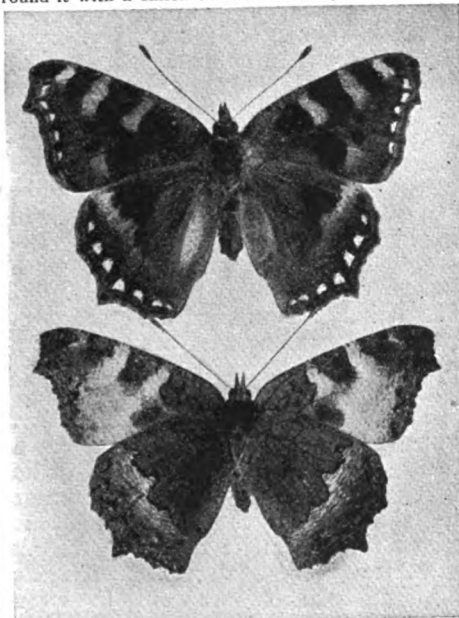
# THE LIFE-STORIES OF TWO BUTTERFLIES



In the picture on the left we see the eggs of the small tortoiseshell butterfly, magnified 100 times. They are laid on the underside of a nettle-leaf, and are exactly the colour of the leaf. On the right is the red admiral butterfly's egg, seen first from the side and then from the top. It can be distinguished by the white rib-like markings.



Here we see the caterpillar and chrysalis of the small tortoiseshell on the right, and of the red admiral on the left. The tortoiseshell's caterpillars are found in colonies on nettles, but as they grow bigger they separate to search for food, and soon change into the handsome gilt-spangled chrysalis. The red admiral caterpillar, on the other hand, prefers a solitary life, and it protects itself from the weather by drawing leaves round it with a silken thread. Its chrysalis, like that of nearly all the butterflies, hangs by a single thread.



The small tortoiseshell butterfly, shown on the left, and the red admiral, on the right, are two of our most familiar British butterflies, and the latter is also one of the most beautiful. In these pictures, as in those on the following pages, the top specimen shows the beautiful upper side of the creature, and the lower picture the dull underside.

The photographs on these pages are by A. E. Tonge and J. J. Ward.



locking into the eye of the upper wing. The butterflies lack this provision. Then there is a difference in the character of the antennæ, which, as we know, is the word meaning the feelers of the insect. The butterfly's antennæ are club-shaped at the tips; those of the moth are plain, though often "feathered." It is in these two directions that the difference lies.

**THE BUTTERFLIES THAT FEED BY DAY AND THE MOTHS THAT FEED BY NIGHT**

The habits of both sections are very similar. The butterflies generally live by feeding on the nectar of flowers by day; the moths, for the most part, take the same sort of food by night. Both lay their eggs on plants or on other material which will provide food for the caterpillar when it leaves the egg. The chief distinctions between the caterpillars are two. The first is this: that the caterpillar of the moth, when it changes its form, generally spins for itself a cocoon of silk, or makes some other form of dwelling in which to undergo its alteration; whereas the caterpillar of the butterfly is, as a rule, content to suspend itself by one silken thread, or at most a band of silk woven about its middle. The second distinction is that the chrysalis of the butterfly is commonly of a golden colour; the chrysalis of the moth, called a pupa, is generally a deep reddish brown.

The perils of the caterpillar begin before the caterpillar is born. The parent lays the eggs in a position where, in spite of all her care, they may be eaten by beetles or small birds. Luckily for the family, the eggs are not all laid in the same place. The butterfly or moth chooses a place which will suffice to feed the young caterpillars when they are hatched; and lays an instalment of eggs. Then she goes to a similar place and deposits a second instalment.

**THE LITTLE CATERPILLAR THAT BURSTS ITS SHELL AND AT ONCE GROWS HUNGRY**

The eggs may be of various sizes, shapes, and colours, but the process which they undergo is always the same. If the weather be warm they will be hatched in eight or ten days, and a weak little caterpillar bursts its shell and at once grows hungry. The first thing it does is to gnaw the leaf upon which it finds itself, or to eat the shell of the egg from which it came. It

soon begins to increase in size. It eats as if nothing could tire it. Its powerful jaws enable it to eat and gnaw the leaves upon which it finds itself, and so good does this food prove that, in a few days, the caterpillar finds itself in much the same position as the growing crab—it has become too big for its skin.

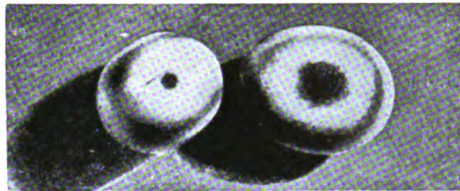
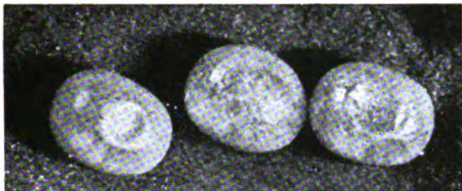
Therefore it has to undergo a moult. This is a long and difficult process, for the old skin has to be rent at the back of the head, and the caterpillar has to draw its entire body—legs, feelers and all, through the rent. Nor is that the worst of it. Like some of the shell-fish, the poor caterpillar must cast aside the lining of the canal down which its food passes—it is a complete-moult of the skin of the caterpillar, inside and out. After the task is finished the caterpillar is quite exhausted, and it has to take a good rest to recover. While it is resting, its jaws, which have been soft since they lost their covering, become hard again, and soon the spirits of the caterpillar revive, and it goes on feeding and feeding, until it becomes necessary to undergo another moult.

**HOW THE CATERPILLAR'S LIFE IS MADE UP OF FEEDING AND CASTING ITS SKIN**

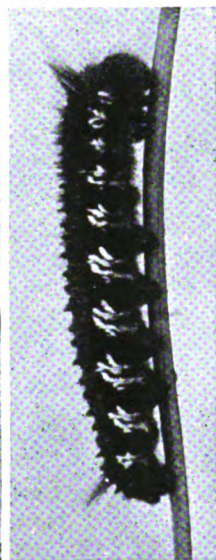
The form of this second moult is the same as the first. The caterpillar's life is made up of feeding and casting its skin. No sooner has it become vigorous and hearty than it must jump out of its skin again. This may happen from five to ten times. It all depends how long the caterpillar is to remain a caterpillar. Some change into chrysalises at the end of a month, while others, like the caterpillar of the goat moth, remain in the larva stage for three years. The caterpillar of the privet hawk moth is one of the caterpillars in a hurry. It is that very beautiful light green caterpillar which has pretty stripes along both sides, and a little curved spike over the tail.

This becomes a very big caterpillar, but it does all its growing in a month. Six times in the course of its first twenty-two days of life it changes its skin. After the sixth moult it seems to know that there will be no more trouble of this sort, and it feeds itself up as if it were going in for a show. Ten days after the sixth moult it reaches its fullest size, and it is then ready to become a pupa, or chrysalis.

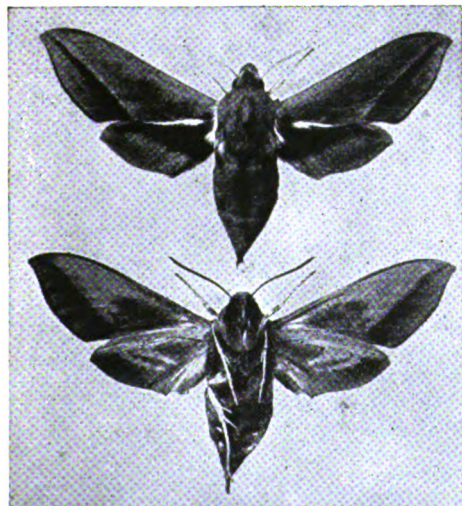
# THE ELEPHANT HAWK & THE DRINKER MOTH



We have many hawk moths in this country, and they get their name from their powerful flight, supposed to resemble that of the hawk. On the left we see the green eggs of the elephant hawk moth, magnified 100 times. On the right are the eggs, also enlarged 100 times, of the drinker moth; they are white and have a central green spot.



The caterpillar of the elephant hawk moth is green at first, but when about half grown it changes to a purplish brown. The chrysalis, enclosed in a loose cocoon, passes the winter on the ground among the roots of its food-plant, willow-herb. In the left-hand picture we see both stages of the elephant hawk, and on the right the caterpillar and chrysalis of the drinker moth. This latter hides among the rubbish in hedge-bottoms, and is fond of drinking dewdrops. It feeds on grass, and is easy to find on a dewy morning or after a light shower.



The elephant hawk moth, shown in the left-hand picture, is so called because its caterpillar looks something like an elephant's trunk. It is one of the smallest of the hawk moths. On the right we see the drinker moth, which gets its name from its large proboscis, or trunk, with which it drinks. The female is larger than the male.

By this time it has eaten so much that its weight is 11,312 times as much as the weight of the same caterpillar when it was born. Then there is the goat moth; what has he done in his three years of caterpillar life? He has made himself 72,000 times as heavy as when he left the egg. The case of the privet hawk moth has been mentioned only because he is one of our popular garden beauties, not because his appetite is exceptional.

One caterpillar, which lives on the oak-tree, was watched for fifty-two days, and in that time he was found to eat 120 oak leaves, weighing three-quarters of a pound, and to drink half an ounce of water. The food which this hungry caterpillar had eaten in that time was equal to 86,000 times the weight at which that caterpillar left the egg. If we want another hearty feeder, let us buy a few eggs of the silkworm moth, let them hatch, and watch the caterpillars at mulberry leaves. When the caterpillars are all at work on their meals, their munching sounds like the rustling of paper.

#### HOW THE CATERPILLAR CASTS ITS SKIN AND BECOMES A CHRYSALIS

The chief aim of the caterpillar's life is to be fat and strong in readiness for the great day when its form must be changed. That is the day upon which it turns into a chrysalis. We must look back, afterwards, to the precautions taken in readiness for this day—to the cocoon-spinning, and so forth. Here we can go straight on with our story, because, as we have seen, the butterfly chrysalises make little preparation in the way of spinning. The last moult of all comes on this day.

We leave our caterpillar looking fat and lazy. When we return to his little home we find a caterpillar no longer. There, on the floor of the case or box, lies his old skin; beside it is a smooth chrysalis, or pupa, looking something like a date-stone. But this time the moult has taken everything. Head, eyes, jaws, claws, legs, and claspers—all are gone. Nothing but this smooth little horny cylinder remains. It is as if our handsome caterpillar, which we have fed from its birth, had died, and left us nothing but a small ringed tube to remind us of the past. No one would think that there was life in the

chrysalis. But take it up carefully and let the warmth of our hand be felt by the chrysalis, and the latter will wriggle, perhaps because it is annoyed—if a chrysalis is so silly as to feel annoyed—perhaps because it likes the warmth.

#### THE MIRACLE OF A BUTTERFLY'S BIRTH FROM A CHRYSALIS THAT LOOKS DEAD

Whatever the case, there is our caterpillar turned to a pupa, or chrysalis, and in that state it lies like a dead thing for days and days. We see nothing from the outside beyond the dull, horny cover, which is about as interesting as an empty shell. But within that covering a miracle is being performed. The body of the caterpillar is being remade while we wait. It may take only a fortnight if the weather be warm at the time. At the end of that period the chrysalis will open at the top end; the top ring will come off like a lid, and a lovely moth or butterfly will creep out. The big, biting jaws for eating vegetation have gone, the true legs in front and the stumpy false legs at the back have disappeared, and new legs have grown in front.

When it comes out of the chrysalis shell, the moth or butterfly is as big as it ever will be. At first its wings are damp, and its legs are weak and trembling, and the poor thing seems quite faint. But the warm air soon dries its wings, and very shortly the butterfly starts up into the air; and there before us is one of the loveliest creatures in all creation. We have watched the whole process from the time that the butterfly laid the egg. We have seen the egg turn into a caterpillar, and the caterpillar turn into a chrysalis, and we have now seen the chrysalis turn into a butterfly.

But all this may have taken only a few weeks. The cabbage butterfly, as we all ought to know, lays two batches of eggs every summer, and those eggs quickly hatch. Where, then, is the year's entertainment which the process was to afford us? The answer is that we must not depend upon one species.

#### A QUICK-CHANGING CHRYSALIS AND A CHRYSALIS THAT SLEEPS ALL WINTER

We must have a caterpillar which will quickly turn into a chrysalis, and from that to a butterfly. But we must have also a caterpillar which, after becoming a chrysalis, will last through the winter in that state, and be a feast



of wonder for us until the glad days of summer come again, when we may renew our store of eggs and continue the hatching process with other varieties.

The chrysalis stage, though it is rather trying to the impatient, is one of the most marvellous things in Nature. In the study where this story is written many caterpillars and butterflies have been born. A little girl and a friend have splendid times in this butterfly nursery. She never fails to find him some big, fat caterpillars, and he in return seeks among the bushes and finds clusters of others in their webs, or the eggs of moths and caterpillars laid upon out-of-the-way leaves. Between them, this clever little girl and her friend brought up a big family of the loveliest silver, pearly moths, speckled with black.

They took the caterpillars from a variegated privet-bush, and fed them on fresh leaves every day; and saw them weave themselves into webs, and finally wrap themselves up, one by one, each in its little nest of spun silk, and each leaving its skin outside. And then they saw them hatch into these lovely moths, and finally turned them loose in the garden from which the caterpillars came.

#### HOW A LITTLE GIRL'S HAIRY CATERPILLAR CHANGED INTO A FAT CHRYSALIS

Of course the gardener would not be at all pleased about the moths being turned loose, for their caterpillars damage the trees and shrubs that he so lovingly tends; but not even skilful gardeners can have all their own way.

In this study, which is also a nursery for butterflies and other things, there rested all the winter days a great fat chrysalis. Before, it was a fine hairy caterpillar, gay with black and gold. It was the little girl's "find," and they kept it in the big box which was the cradle of the others. Its caterpillar life was passed in the pleasant days of summer; in the chrysalis form it braved the cold days of winter. People, looking at it, thought that the chrysalis was dead, but its two keepers knew better. They knew that they had only to hold it for a minute or so in their hands for the warmth to make the chrysalis stir and wriggle. They knew that in the warm days of early summer the dark old case would be split open at the top, and that there would come forth a lovely great moth.

We think it wonderful that bears and

other animals should have the power to sustain life while sleeping all through the winter, but surely it is far more wonderful that so little a thing as a caterpillar should be able to store up within itself strength enough to carry it all through the terrible days of winter.

#### SOMETHING THE GENTLE CATERPILLAR CAN DO THAT THE FIERCE WASP CANNOT DO

The big, fierce wasps cannot do this; only their queens live through the winter. This power is one of the gifts which Nature has bestowed upon the caterpillars of moths and butterflies. Others of their order can sleep through the worst of the summer days in the scorching lands where winter never comes. They remain in the chrysalis stage when the vegetation is scorched up, and come out when flowers and fruit are in their glory.

So far we have thought only of the caterpillars that pass their time in the open in an average American garden. There are others which are compelled to take greater precautions. One family of caterpillars cannot live in this way. They are called miners, and live inside leaves. By the most skilful method of cutting, they bore their way into leaves, and make a chamber actually inside the leaf. They feed on the inside of the leaf. They gnaw at the fibrous stalks, or nervures of the leaves, to make them smooth and level with the flesh of the leaf, and when they have made the chamber within the leaf large enough, they spin a complete covering of silk, as if the interior of the leaf were too rough for their tender skins. Another caterpillar, not satisfied with his retreat in the stalk of a plant, makes a sort of trap of bristly hairs at the entrance, with the spikes pointing outwards, so that while he can go out, no deadly insect can get in to eat him up.

#### A POOR LITTLE CATERPILLAR THAT COULD NOT BECOME A CHRYSALIS

And that brings us to one of the great tragedies of caterpillar life. The little girl of whom we have been reading had a caterpillar in a poor sort of cocoon for weeks and weeks. She noticed that it had not been able to cast its skin as the others had done, and that it repeatedly fell from the top of the box to the bottom when climbing up to spin. At last it settled down in a corner at the bottom of the box, and spun this poor cocoon, and could no longer be seen.

Days passed away, and when the little girl opened the box there was no sign of change in the caterpillar. But each time a fly would buzz out in her face, and make her slam the box indignantly, and ask: "Who has been putting these nasty old flies into the caterpillar box?"

At last the little girl's friend got his magnifying glass, and carefully examined the cocoon. Then he cut the cocoon out of the box, and was able to explain the mystery. The body of the caterpillar inside the cocoon was dried and hollow; it was a mere wrinkled skin. All round it were tiny chrysalis cases—empty. It was from these little cases inside the cocoon that the flies, which annoyed the little girl, had come. When the caterpillar was at liberty in the garden, an ichneumon fly had perched upon it. Driving her sharp needle into his back, she had made little holes, and in each she had deposited one of her eggs. These eggs were in the body of the caterpillar when the little girl caught it. The eggs had hatched in the caterpillar's body, and little grubs had come forth from them and eaten the flesh of the caterpillar. Then they had changed into chrysalises, and at the right time had burst their cases and come forth as fully developed ichneumon flies, ready to fly out when the little girl opened the box.

#### **CATERPILLARS THAT HIDE IN TREES AND CATERPILLARS THAT GROW HORNS**

That is a horrid tale, is it not? But it is the sort of thing that is going on around us in the gardens and fields and woods every summer's day. The caterpillar lives until the grubs of the fly, hatched from their eggs, eat it up. It is supposed that the caterpillar feels no pain; that its nerves are paralysed by the mother ichneumon, but that it has just strength enough to live until the little flies hatch.

That is only one of the dangers of the caterpillars. The birds devour myriads of them. Some, to avoid their enemies, bore their way into the decayed trunks of trees, and there undergo their change. When they are about to turn into chrysalises, they work their way near the bark of the tree, so that the moth which comes forth in due time shall have no difficulty in making its way out. Other caterpillars are covered with hairs, which not only serve to protect them if they fall, but make birds dislike them as

food. The cuckoos live almost entirely on hairy caterpillars which other birds will rarely touch. Big hawk moth caterpillars have horny hooks over the rear segment of the body, and they look quite formidable as they whirl from side to side when handled. The sphinx caterpillars try to frighten enemies by assuming the most alarming attitudes. Others feign death, and some crawling about twigs can so imitate the look of a dry twig that they escape the eyes of their enemies.

#### **ARMIES OF CATERPILLARS THAT STRIP FORESTS AND STOP TRAINS**

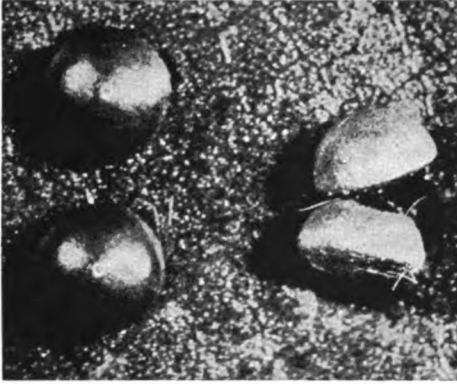
A whole book might be filled with the wonders of caterpillar life, about their spinning and building, and so forth. The silkworm itself demands special mention, and we shall have a story about that in another part of the book. The subject of the damage done by caterpillars is, of course, very important, but we must leave that, remembering that the ravages of these insects are so severe in some years that they can strip a forest of leaves, and when on the march, go in such enormous multitudes that they can even stop railway trains by making the lines impossible for the wheels of the carriages to grip. But we must pass on now to the final stage.

As soon as it leaves the chrysalis, the moth or butterfly dries its wings, and flies away to seek a mate. Generally the males are the more handsome. A bright-coloured female might attract attention while she was laying her eggs, and she would be killed. With the males it does not so much matter, as after a few short days their lives end. Even they, however, have in many cases means of protection. As they fly with gorgeous wings outspread, lovely as the birds of paradise, one might think that they could not escape detection. But watch one of the handsomest as it settles. In a twinkling the butterfly which we have watched to a tree or a bush has vanished.

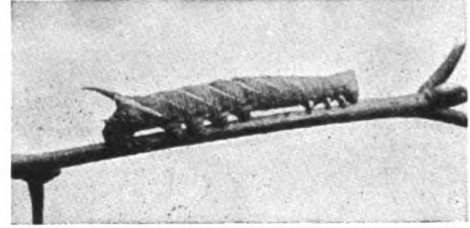
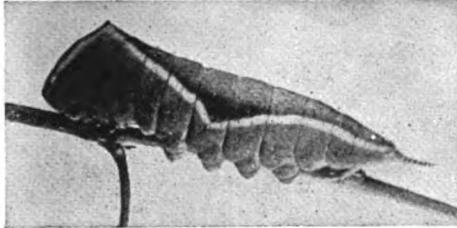
#### **HOW BUTTERFLIES CLOSE UP THEIR WINGS AND BECOME INVISIBLE**

The wings are brought upright together over the butterfly's back, leaving only the under sides showing, and the colouring here very much resembles the colour of the branch on which the insect rests. The glory of the butterfly, which would betray it to enemies, is hidden by this provision of Nature. The gay wings close up over the insect's back, like

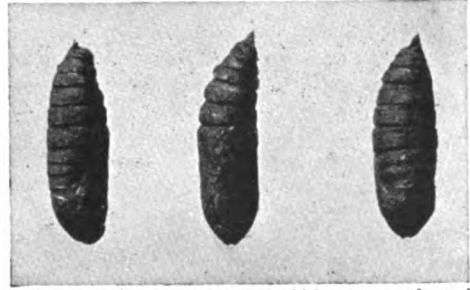
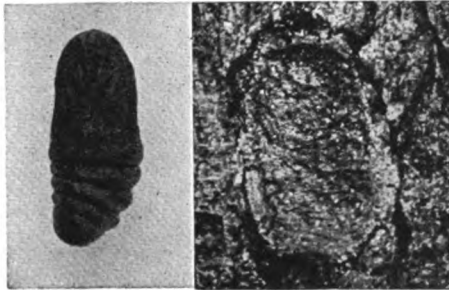
## THE PUSS MOTH AND THE LIME HAWK MOTH



The puss moth lays its reddish-brown eggs on the leaves of poplar and willow trees, where they pass unnoticed; but magnified a hundred times they appear as in the left-hand picture. In the right-hand picture we see the eggs of the lime hawk moth similarly enlarged. These are laid on lime or elm leaves, and are a dull green.



On the left we see the caterpillar of the puss moth, which changes from black to a bright velvety green with white stripes. It has a curious sphinx-like appearance when resting, and from its tail throws out two scarlet threads that frighten away ichneumon flies that attack it. On the right is the caterpillar of the lime hawk moth.



When the puss moth caterpillar is about to change into a chrysalis, it makes a cocoon by biting pieces of wood from the bark of a poplar or willow, and cementing these into a substance so hard that it will break a penknife blade. It is the same colour as the bark, and is difficult to find. On the left we see the chrysalis and cocoon of the puss moth. On the right are three chrysalises of the lime hawk moth, whose caterpillar is transformed underground.



Here on the left we see the furry puss moth, which gets its name from its supposed resemblance to a tabby cat, although its colour is really black and white. On the right is the lime hawk moth, the caterpillar of which feeds on lime leaves. Its colour varies, but it is usually leaf-brown and green, with black spots and stripes.



the leaves of a book, and the parts of its body which are visible resemble its surroundings. Even our common cabbage butterflies are difficult to see when they settle and close their wings.

By a gradual process the handsome butterflies have made themselves, when still, like the colour of the twigs or foliage on which they rest. Some of the most beautiful look just like dead leaves when they rest on a tree. But others have done a more wonderful thing. It is impossible to explain how they have done it, but some of the biggest and handsomest have made themselves like other insects known to be poisonous or in other ways distasteful to birds. These imitative butterflies may be seen flying about slowly, not at all alarmed by the presence of birds that eat butterflies.

The food of butterflies consists, as a rule, of the nectar of flowers, but there are exceptions even among the loveliest. One of the finest and largest butterflies we have in this country is the Purple Emperor. He flies high among the tree-tops, and is not easily to be seen. There is a way to bring him down, however, and that is to set a bait of putrid flesh. He will come down readily enough to that, although he cannot bite it.

#### FAMOUS BUTTERFLIES AND A BUTTERFLY THAT FLIES THREE MILES HIGH

He has neither jaws nor teeth; those he left behind when he turned from a caterpillar into a chrysalis. He has a long sucking-tube, and with this he sucks the fluid out of the meat. The more handsome the butterfly, the more certain is it that he will like this sort of food. And he and others will drop to the ground to drink from the water of a puddle.

The finest of all our butterflies is the Swallow Tail. Other famous ones are the Marbled White, Scotch Argus, White Admiral, Red Admiral, Peacock, Large and Small Tortoiseshell, Camberwell Beauty, Painted Lady, Brown Hairstreak, the Fritillaries, the Large Copper and the Cabbage butterfly, and, of course, the Purple Emperor. Specimens of several of these may be found in all temperate lands. It is surprising how far the butterfly really does go. Of course, we expect to find it in hot countries, and we do find it there, in enormous numbers—thousands of species, as large as birds, some of them, and lovely as a poet's dream. But in the frozen lands, in the

short days of summer, we find butterflies; and high up mountain-sides, where it is cold and bleak, 16,000 feet and more up, there also we find butterflies. They can fly far, too. Darwin saw them out at sea in such clouds that, though he used a telescope, he could not find where the swarm began or ended.

#### VAST CLOUDS OF BUTTERFLIES THAT TAKE DAYS TO FLY PAST A PLACE

In Ceylon a traveller saw such a multitude of them that it took days for the whole host of them to pass.

The life-story of the moth closely resembles that of the butterfly, except that most moths prefer the night hours in which to fly. There are thousands of species of them, from the monsters called owl moths, measuring nearly a foot across the extended wings, down to the little moths which good housekeepers so fear. Most of the moths have the same sort of food as the butterflies, and lay their eggs on plants which serve the caterpillars as food.

The clothes moth is one of the smallest of the family, and because of its bad reputation is one of the things most disliked. Let us say a good word for it. The moth does not want our *clothes*. Its purpose in life is to act as a scavenger, to eat up wool and hair and feathers discarded by animals and birds, or left by those which have died. But if we have the windows open and a light shining at night when the little moth flies from her hiding-place, she is bound to fly in—the light draws her. And once in, the moth thinks it might as well stop. So it creeps into the wardrobe, or clothes-chest, or, it may be, into the carpet or the stuffing of the furniture, even into the rugs with which we clothe the horse in the stable. There it lays its eggs and dies. The moth itself never eats clothes. It does not eat anything at all. It is the caterpillar from the egg which does the damage.

#### THE CATERPILLAR THAT EATS OUR CARPETS TO MAKE A HOUSE FOR ITSELF

This is a marvellous little worker. It eats wool and the fur for its meals, and it converts more wool or hair into a little house for itself. Having no shell of its own, it makes one by chewing hair or wool and making it into a sort of silk. This case it never leaves. As it grows bigger the caterpillar splits open its case, adds a length to the end

in front, and a length to the end in the rear, and spinning a new section, joins it entirely along the whole side, then seals up the case once more. When it walks it pops out its head and front legs, and draws its case with it.

The damage that it does results from its not only biting up the wool or fur for its food or for its house; like some of the ants, it must have a straight, smooth path along which to walk. To secure this, it bites the fur or wool quite level with its scissor-like jaws, so that its path may be plain and easy wherever it goes. Before turning into a chrysalis it spins threads which fasten its nest to the article upon which it has rested. It remains three weeks in the chrysalis case, then comes forth as a moth, lays its eggs and dies.

Another famous moth which we must notice is the death's-head moth. This is the one which we read about in the story of the bees. It is a fine, handsome moth, with a great love for honey. So it creeps into the hives to feed—the bees know that it has no right there, that it is a robber of their store.

**A BIG MOTH THAT LIKES HONEY AND SQUEAKS TO FRIGHTEN THE BEES**

But the big moth has a voice, and pipes away in notes like the note of the queen bee. The voice of the queen bee always terrifies the bees, and the voice of the death's-head moth seems to have the same effect upon them. Instead of killing the moth with their stings, as they easily could, or sealing it up as they seal up the snail, they merely build walls of wax to prevent the robber from getting at their store. This leaves open a passage along which they can run, but is too small for the moth to enter. It is surprising that some of the day-flying moths do not imitate the death's-head moth, for there are several species shaped and coloured just like bees and wasps. Their shape and colour are a part of the great plan known as protective mimicry, by which various forms of animal life are enabled to make themselves either like other living species, or like their surroundings.

The females of some moths never use their wings. The females of the Vapourer moths, after quitting the chrysalis stage, deposit their eggs on the outside of the cocoon, while the female Psyches never leave the cocoon at all. We have

a moth in our American orchards whose female has but feeble wings. It is a mercy that this is so, or we should have very little fruit. The eggs of the moth are laid in the branches of the tree, and the caterpillars are so numerous and so hungry that they can completely strip a tree of its leaves and buds. One farmer in Ohio went into his orchard at mid-summer and found the fruit-trees as bare as if it were the depth of winter.

**MOTHS THAT CANNOT FLY, BUT CLIMB TREES TO LAY THEIR EGGS**

When the chrysalis forms it drops to the ground, and there the moth is produced. Now, as the female cannot fly, when she wants to lay her eggs she has to reach the top of the tree by climbing up the trunk. So the fruit-growers, who have learned the secret, put bands of a special sort of paper round the trunks of their trees, and on this paper they spread bird-lime or other sticky stuff. When the moth starts to climb up the tree, she is caught on this sticky band. Then, as there are no moths to lay eggs in the trees in the autumn, there are no caterpillars in the following spring to destroy the farmer's leaves and kill the trees.

We cannot protect our vegetables against the cabbage butterfly in that way. It is there that the ichneumon fly saves us. If all the eggs of the cabbage butterflies came to maturity, there would be no vegetables left in the country.

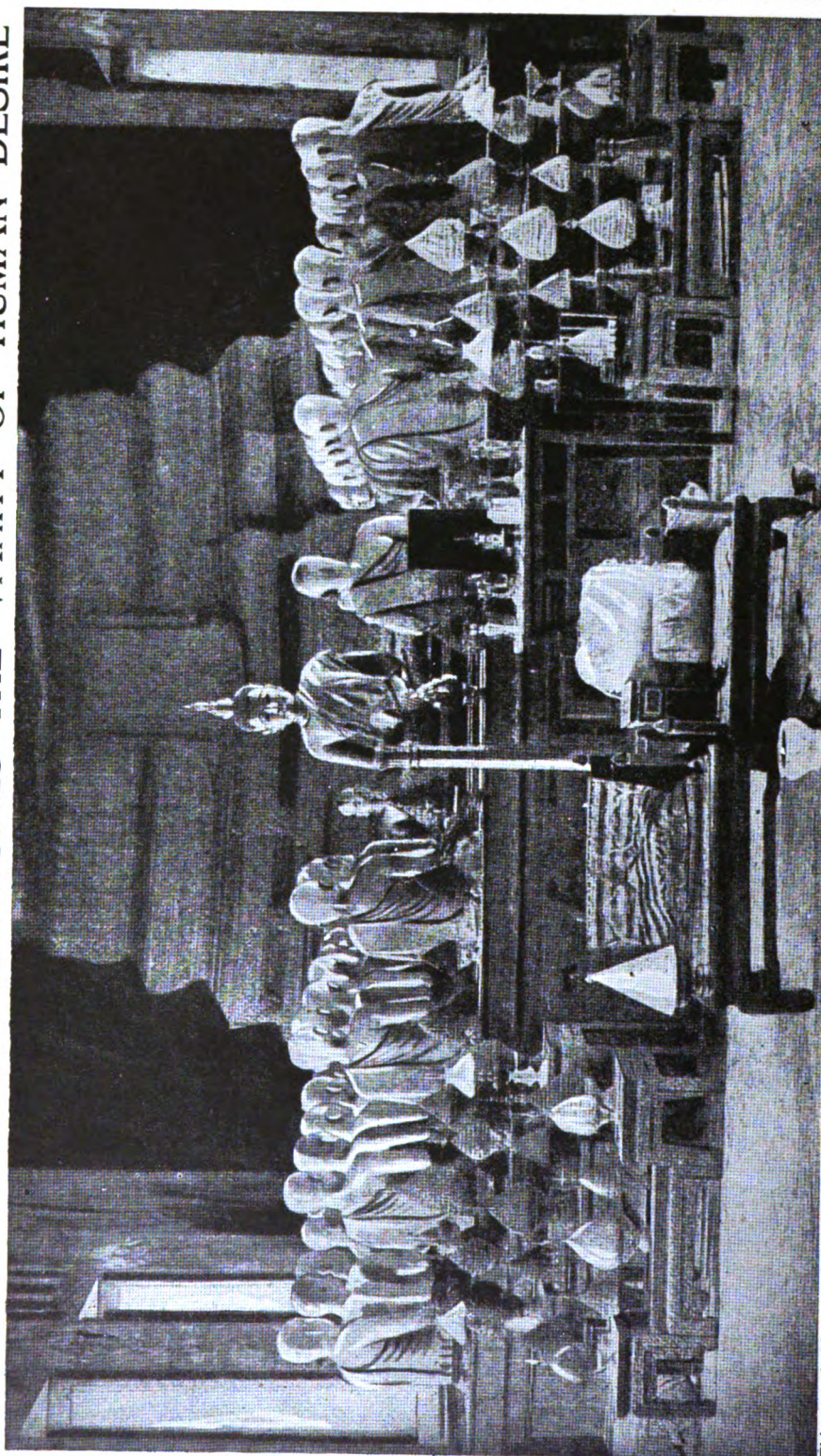
Many moths and butterflies do not live long enough to lay two lots of eggs in a year. Most of them die as soon as their eggs have been laid.

**WHY WE SOMETIMES SEE BUTTERFLIES FLYING ON A COLD WINTER'S DAY**

But some get into a sheltered nook before the weather turns cold, and in that condition slumber away the winter, to be awakened by the first warm, sunny day that comes. That is why, on a warm day in winter, we may sometimes see butterflies on the wing. That may happen also from chrysalises being turned, by the warm weather, into the perfect insects before their due season. For the most part, however, the eggs or the chrysalis remains quiet and inactive during the winter months, and when summer comes, then come also the little-known beauties of the moths and the gay splendour of the butterflies.

The next story of Nature is on page 3139.

## BUDDHA TEACHING HIS PUPILS THE VANITY OF HUMAN DESIRE



This remarkable group of lifelike figures is to be seen in a pagoda at Bangkok, the capital of Siam. It represents Buddha, "the Enlightened One," teaching his pupils, each of whom is dressed in the robe of a Buddhist priest, and has his name on a marble tablet affixed to his statue. All the pupils are sculptured life-size, while Buddha is greater than life-size.





SHAKESPEARE

# The Child's Book of MEN & WOMEN

MIL  
TON



## SOME FOUNDERS OF RELIGIONS

MAN in all ages has been puzzled to know why he exists, and how this earth came into being. Directly he began to think, he found himself surrounded by mystery. He looked around him, and saw the beauty of the fields, the majesty of the hills, the wonder of great waters; he looked upward, and fixed his gaze upon the uncountable stars; he turned his gaze inward, and saw, as it were in a mirror, himself, his own thought, his reflection of "I am I." What did it all mean? Whence? For what purpose? Whither?

Among those who wondered there were some who meditated and reflected. Their meditations led them to believe certain things. They spoke of these beliefs. If their beliefs satisfied the ideas of men, they became teachers. They spent their lives in teaching, and at their death others continued to deliver the message.

Who these earliest teachers were and what they taught we shall never know accurately. The earliest religious guesses of the human race are lost in the silence of the past. It is quite late in the history of humanity that we come upon religious teachers whom we can name, and whose teachings are more or less clear to us. But these men, it must be carefully remembered, had inherited a teaching which goes back to the remote ages of the human race. Two of the teachers whom we meet in the past were natives of India, Gautama,

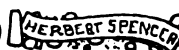
CONTINUED FROM 2914



the founder of Buddhism, and Vardhamana, the founder of what is called Jainism. In India, philosophy, which means search after truth, deeply occupied men's minds. Life was easy there; people had much time to sit down and think; and some gave themselves up entirely to guessing at the riddle of man's existence. India may be called the cradle of religion—certainly the cradle of dreamy guesses.

Some five hundred years before the birth of Christ, the two men of whom we have spoken were born in India. The religion of that time was Brahmanism, a loose set of ideas into which we need not inquire. The point is that Brahmanism did not satisfy either Gautama or Vardhamana.

Gautama was the son of an influential man, some say a rajah, or king. He was brought up in a palace, and the world was kept hidden from him till he was married. While he lived in the palace, Brahmanism satisfied him. Alas! his first excursion into the world shattered his beliefs. He saw a broken-down old man, then a sick person, and at last a corpse. These things seemed terrible to his soul. He felt that life was a horror. He sought to escape from it. Leaving his wife, his new-born babe, his father, his friends, his wealth, and his palace, Gautama went out into the wilderness, alone and penniless and homeless, to think about life.



He came to the conclusion that all solid and material things are useless and quite unworthy of men's affections, because they have the germ of death in them and will pass away. Nothing is worth while. Everything dies. He accepted the conclusion that man is born on this earth not once, but many times, and, because each time his spirit is filled with foolish and vain desires, the great object of life should be to destroy all desire. When once a man wishes for nothing, absolutely nothing, when his spirit is filled with nothing but a complete willingness to perish, then at death he passes out of the world for ever, enters something called Nirvana, which no European can understand, and is blessed for ever by being for ever non-existent. He ceases to be. Gautama preached this doctrine and called himself the Buddha, which means the Enlightened One.

It is the most curious religion in the world, if it can be called a religion at all, this Buddhism of Gautama. At one moment you feel how beautiful it is; at the next you are inclined to laugh at its apparent uselessness.

#### THE WOMAN WHO CAME TO BUDDHA AND LEARNED THE SADNESS OF LIFE

Here is a typical story of the Buddha. A poor woman came to him one day with a dead child in her arms. She was wild with grief, and implored the Buddha to give her medicine which would heal her child. Whatever herbs he needed for this medicine she would fetch him, even if she had to go to the ends of the earth. He told her to fetch a little common mustard seed, adding that it must be brought from some house in which no son, or husband, or parent, or slave had died. The woman went away eagerly to fetch the simple mustard seed.

"Here is mustard seed," everyone said to her. But when she asked if any had died in that house, the answer was:

"Lady, the living are few, but the dead are many."

For a long time she journeyed, and then, seeing the truth of things, namely, that death is common to the race, she left her dead baby, and returned.

"Have you the seed?" asked Buddha.

"My lord," she answered, "the people tell me that the living are few, but that the dead are many."

Then the Buddha taught her the great sadness of life, and filled her with the desire no longer to exist. As a matter of fact, the whole teaching of Buddhism in regard to human life is the direct opposite of Christianity.

#### THE BUDDHIST WHO SEEKS NOTHING, AND THE CHRISTIAN WHO SEEKS EVERYTHING

Buddhism, filled with the melancholy of despair, says: "Nothing is worth while." Christianity, filled with the vigour of hope, shouts: "Everything is worth while." The Buddhist is careless of life and indifferent to suffering. The Christian believes that life is good, and builds hospitals to cure the sick. Buddha did not tell people to struggle, did not bid them repent, issued few rules of conduct. His whole mission was summed up in this—disgust for existence, here or anywhere. If a man felt remorse for his sins, it showed that he wanted to do better. He must want nothing at all.

Buddhism spread among the peoples of India, and at the death of Buddha it spread still more. Its progress was checked, however, among the northern peoples, who believe in opposing themselves to Nature, and refuse to resign themselves to fate. It is a purely Eastern religion, lacking altogether a universal note—it could never convert the world.

Vardhamana did not like the Buddha's teaching, and taught a very different religion. Vardhamana, we may think, was a truer teacher than the Buddha, but, unfortunately, he did not possess the same genius, the same attractiveness, as the other. His converts were fewer.

In the midst of much unintelligible stuff about Nirvana, there is a kernel of solid virtue in Vardhamana's teaching. He taught that everything has a soul, the soul being the "life"—so that grass, trees, animals, even water, have souls.

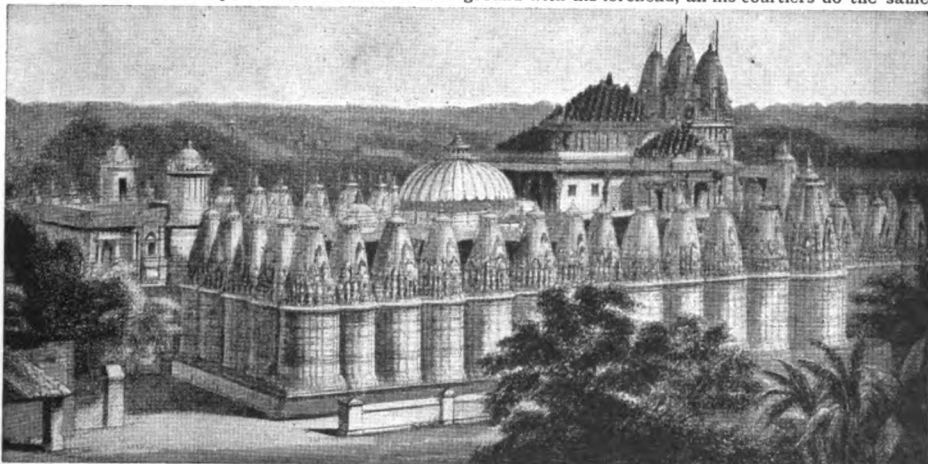
#### A TEACHER OF HOPE WHO FOLLOWED THE TEACHER OF DESPAIR

It is the fate of this soul to journey from body to body for millions of years, and the only escape from the toil of existence lies in practising four virtues—liberality, gentleness, piety, and repentance. One must be good in word, thought, and deed; kindness to animals is essential. So we see that Jainism is better than Buddhism, because it makes for action instead of for despair and resignation; but the goal

## SPLENDID TEMPLES OF ANCIENT FAITHS



The great Temple of Heaven at Pekin is the most sacred spot to the followers of Confucius. There every year, on a great outdoor altar of porcelain, the Chinese emperor kneels and prays for the favour of Heaven. Then sacrifices are offered, and as the emperor bows and touches the ground with his forehead, all his courtiers do the same.



The followers of the Jain religion are not numerous, but they are very wealthy and influential in India, where there are about half a million of them. They have many beautiful temples, and this one at Ahmedabad is a striking example of their elaborate architecture. Jain means victorious, and refers to the victory over self.



appears to be the same—an escape from life. Christ, on the other hand, created in men a passionate desire for life; life, and ever more life; life which fulfils itself in adoration of God, who wishes all His children to be happy.

Nothing is known of Vardhamana, but the Jains still exist, and are very rich.

#### A GREAT CHINESE TEACHER AND THE CURIOUS LEGEND OF HIS BIRTH

Curiously enough, about a century before the existence of these two teachers in India, there lived two teachers at one and the same time in China. The one was Lao-tsze, who founded what is called Taoism; and the other Confucius, the founder of Chinese philosophy.

The meaning of the title Lao-tsze is nothing more or less than "Old Boy," and legend has it that he was born in a miraculous way, being no less than eighty years old at the time of his birth, his head being covered with white hair, and a venerable beard descending from his chin. But a more appropriate translation of "Lao-tsze" is to make it "the Venerable Philosopher"; and of course the story of his birth is simply a legend.

He was born in a hamlet, and became librarian to the king. In the royal library he pondered over the mysteries of life, and after many years he came to a conclusion, which was that the great thing, the supreme virtue, was humility. Desiring to hide himself, he left the palace and set out for the wilderness. As he was passing through the gate, the warden, who knew him for a holy man, said:

"You are about to withdraw yourself from the world. I pray you write me a book before you go."

Lao-tsze thereupon sat down and wrote a book about half the size of St. Mark's Gospel. He gave this to the warden, passed through the gate, and no man knows where he died.

#### HOW LAO-TSZE WROTE A GOSPEL AND TAUGHT MEN NOT TO BE ANXIOUS

The little book is the gospel of Taoism. From those few pages grew up an immense religion. If Lao-tsze could stand in that gate now, he would be amazed to see the effect of his farewell to the warden. Let us see how much we can understand of Taoism.

The word "Tao" is the despair of translators. It means "the way," but it means "the wayfarer" as well. It is man and his destiny; God and

humanity. We cannot say exactly what a Chinaman understands by it. Lao-tsze's advice is that we should think and act without reflection. We should become like young children. The grass grows without taking thought; man should live with a similar freedom from anxiety. Everything should be spontaneous, everything done on the impulse. But he carries this advice almost to the point of anarchy. "It is the way of Tao," he says, "not to act from any personal motive, to conduct affairs without feeling the trouble of them, to eat without being aware of the flavour, to account the great as small and the small as great, to recompense injury with kindness."

He hated war; he did not like to see men put to death. He felt no interest in art, culture, and refinement. Life should be without effort. There could be no beauty where there was strain. The pilgrim of existence should never be in haste about anything, never be anxious.

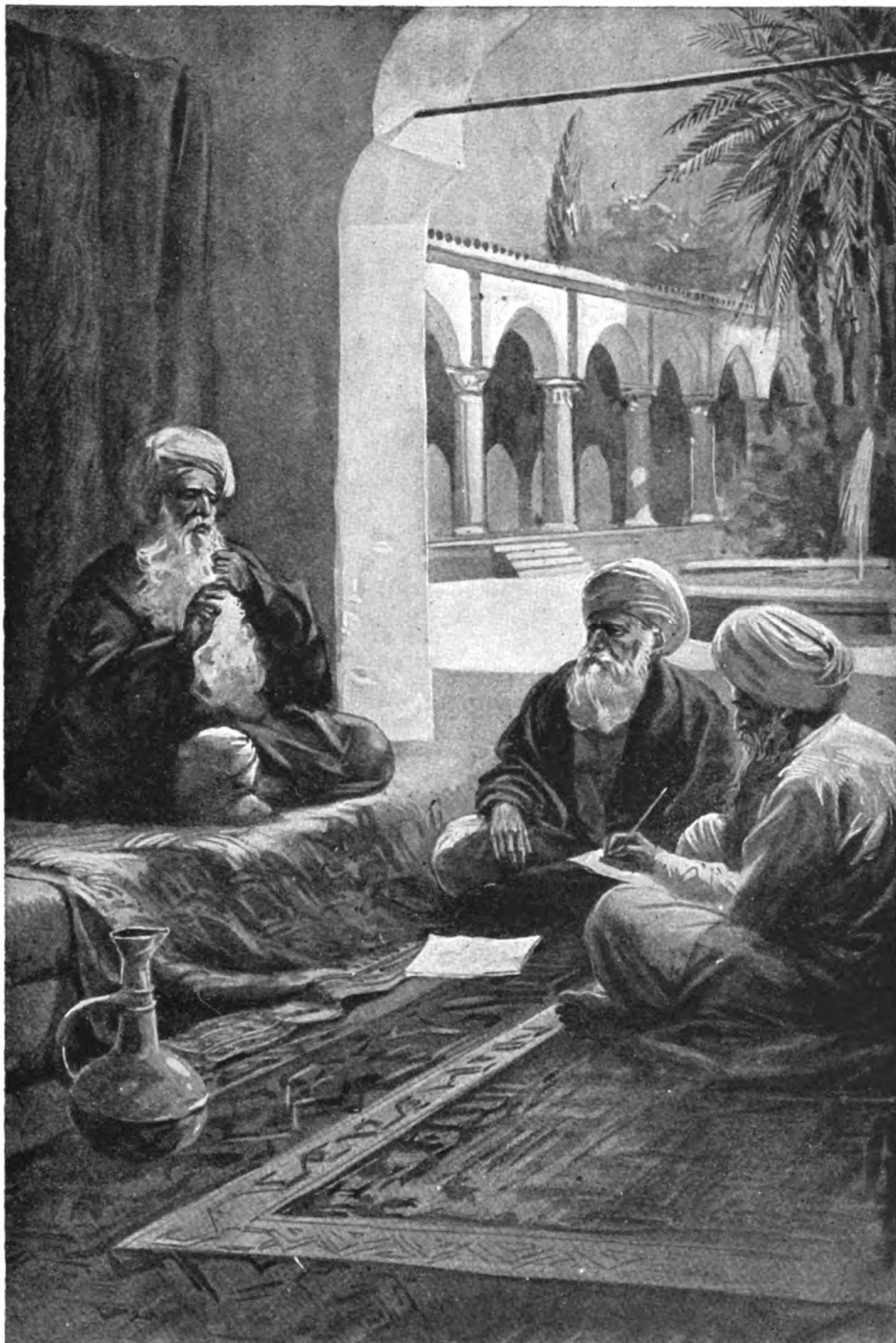
#### THE BOY WHO PLAYED AT PREACHING AND BECAME THE SAGE OF CHINA

We see that, unlike the two teachers of India, this old philosopher wanted people to be happy; but we cannot help feeling that here also is that despairing "fatalism," or the belief that everything is pre-arranged to happen, whatever man may do, which is the ruling idea of the East as distinct from the West.

A very different man is Confucius, the great sage of China. Confucius and Lao-tsze once had a conversation together. Lao-tsze did not think much of Confucius. Confucius was struck by Lao-tsze. Now, which should we say was the greater man? It was Confucius. It requires genius of the highest order to appreciate those with whom we do not agree. Confucius was born of an ancient and honourable family; but he was poor. In order to earn his living, he studied hard in childhood. He was fond of music, and played on the lute, singing to it. His favourite game with other children was what we should call "playing at being a clergyman." He liked to dress himself up, to strike attitudes, and to conduct religious sacrifices. He was married at nineteen, and became a keeper of stores, and afterwards the controller of parks and herds.

He was twenty-two when he set up as a teacher, and it is said of him that

## MOHAMMED DICTATING THE KORAN



Every Mohammedan has the greatest reverence for the sacred scriptures of his religion, called the Koran, a word that means "book," just as our word Bible does. Mohammed pretended that the chapters of the Koran were brought to him from heaven by the angel Gabriel, and to confirm this, pointed to the fact that he himself could neither read nor write. But the general opinion of scholars is that he dictated the Koran.

The photograph of the top picture on page 2997 is by H. C. White & Co., London, and that of Buddha on page 2995 is by Frith.

he never refused a scholar who was too poor to pay his fees. But he used to say that when he had explained one corner of any subject, if the pupil could not understand the other three corners for himself, he gave up teaching that lesson.

His fame spread as a teacher, and he became a minister to one of the rulers. So great was his success that he became "the idol of the people, and flew in songs through their mouths." He put down injustice, and banished crime. He was just, honest, fearless, and good. But the ruler began to grow jealous of his power, and Confucius had to go.

The rest of his life is a pathetic tale of homeless wanderings. Accompanied by his disciples, he journeyed from state to state, seeking some ruler wise enough to accept him as teacher and minister. He told his disciples that the greatest reform was to make people understand the meanings of such names as "ruler," "father," "son." If those words were properly understood, unhappiness and misery would vanish from the earth.

#### HOW THE TEACHER OF CHINA SOUGHT A KINGDOM BUT FOUND NONE

On these wanderings he frequently encountered hermits—men who had retired from the world in disgust. These hermits could not understand how Confucius could be so stupid as to live in a wicked world trying to alter what was unalterable. Confucius said it was impossible to withdraw from men and live with beasts and birds who did not understand man. "With whom should I associate," he asked finely, "but with suffering man?" So he walked on and on, teaching his disciples, comforting the poor, and seeking for a kingdom to rule.

He found no kingdom. But his teachings have lived from the day of those sad wanderings down to our own time, and Confucius now reigns as no other emperor can reign in the hearts of millions and millions of the human race.

One of his sayings shows the great difference between him and Lao-tsze: "The cautious seldom err." But his whole gospel was more generous than that; he taught the golden rule that we should live exactly as we would have others live: "What you do not like when done to yourself, do not to others." His whole teaching shows that we should do good to others, whether there is need for us to do so, or not. But he said

nothing chivalrous or noble about women, and he gave no attention to a life after death. "While you do not know life," he said, "what can you know about death?" All his ideas of goodness concerned man's life on this earth, and it is wonderful that a teacher who left wholly out of account life after death should have had, and still does have, such immense influence over men.

#### THE PROPHET OF PERSIA WHO LAUGHED THE DAY HE WAS BORN

Further back in time than any of these men is the founder of Zoroastrianism, the ancient religion of Persia. Some say he lived before the battle of Troy, others that he was Ezekiel, others that he was Ham, Moses, or Abraham. There is no end to the theories about Zoroaster. The legends about him are also legion. It is said that he began to laugh the day he was born; that the palpitation of his brain was so vigorous that it repelled any hand that might be put upon his head; that he dwelt twenty years in the wilderness and lived upon a single cheese which never grew stale. It is also said that as he came down from meditating in a mountain, fire burst out from heaven which did not consume him; that he desired to be killed by a thunderbolt, and that in this manner he did die, after having taught the Persians all there is to know about this world and the next.

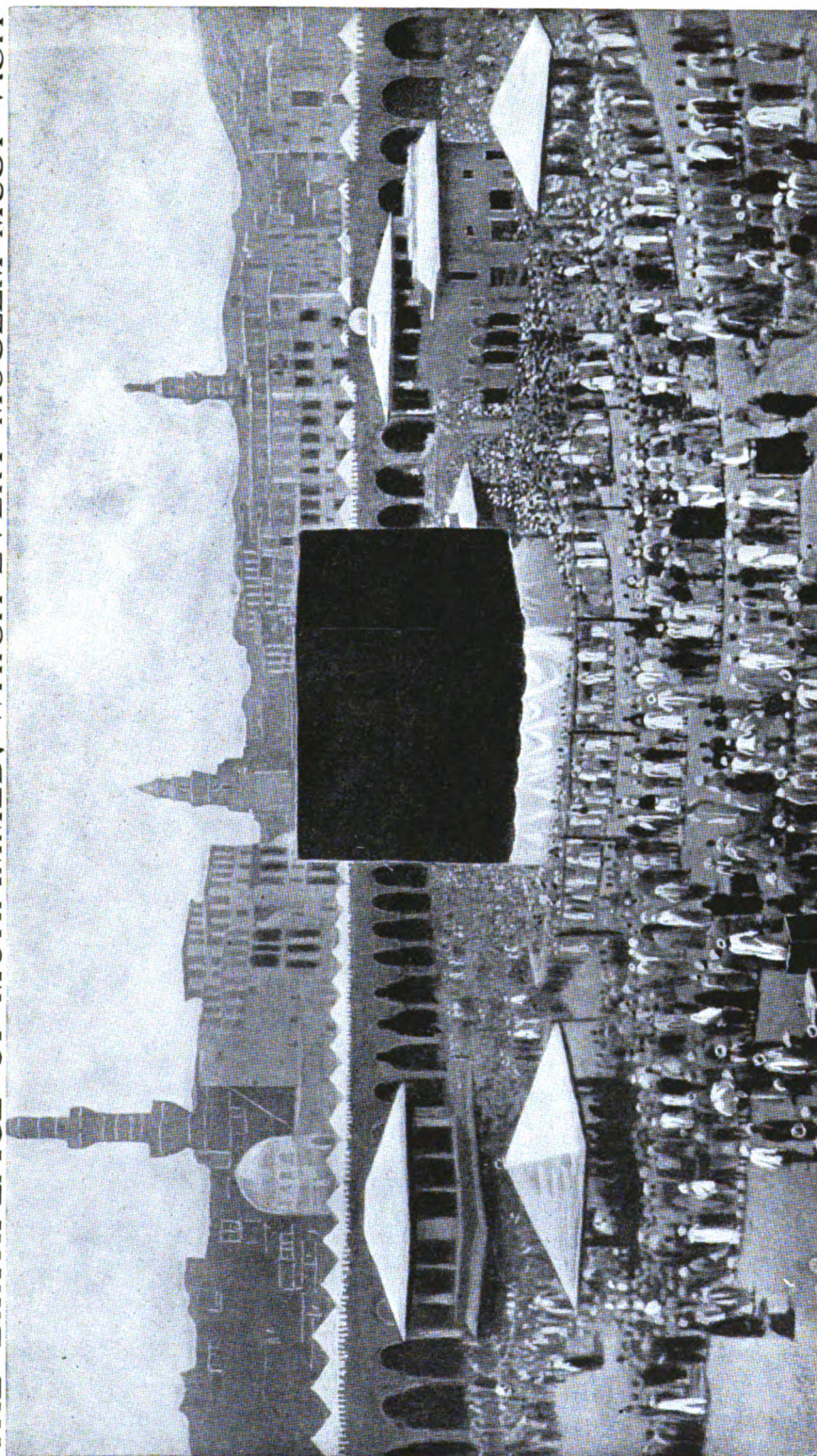
We need not trouble our heads about this enormous nonsense, which always grows up about the original men of antiquity. We may be certain that a man named Zoroaster did live, that he taught the Magi, or Wise Men, of Persia, and that his character was sufficiently unusual to make him revered and honoured and obeyed by his disciples.

#### THE GOOD GOD OF THE LIGHT AND THE EVIL GOD OF THE DARKNESS

Zoroaster divided everything into good and evil. There was a good god and an evil god. Some of the animals, birds, fishes, and plants are made by the good god, and some by the evil. He taught that sacrifices should be made to the good god in order to win from him all manner of good things; and to the evil god also, that he might guard the offerers from dangerous and hurtful and unpleasant things. Light belongs to the good god, and darkness to the bad. The name of the good god is Ormuzd, and the evil Ahriman. Life after death



## THE BIRTHPLACE OF MOHAMMED, WHICH EVERY MOSLEM MUST VISIT



Mecca was a sacred place of pilgrimage long before Mohammed was born there, but now every Moslem must turn towards Mecca when he prays, and must visit it at least once in his life. In the grounds of a great mosque stands the holy kaaba, shown in this picture, a small temple which every year receives new hangings of rich material from the Sultan of Turkey. No pilgrim visits Mecca without walking round the kaaba seven times and kissing a sacred black stone built into its wall, which Abraham is said to have received from Paradise.

will be either good or evil, and the whole of our eternal life is determined by our existence here. The soul after death passes over the Accountant's Bridge; its deeds are examined in the book where everything is written; if there are more good than evil deeds, it goes straight to bliss; if the other, it goes straight to pain; and if the balance is equal, it waits in a land of shadow for the final decision of the Great Judge.

You will see that there is some sense and some beauty mixed up in this otherwise absurd religion, which is interesting as showing us what men have accomplished in striving to solve the great and perplexing riddle of existence.

**THE ORPHAN BOY WHO BECAME A PROPHET TO MILLIONS OF MEN**

And now, last of all, we come to the most recent of religious founders, Mohammed, who is the prophet to millions of the human race, and has sometimes, very ignorantly, been compared with Christ. The truth is that Mohammed probably knew the teachings of Christ. Mohammedanism, some people have said, was Mohammed's effort to rescue the teaching of Jesus from the confusion into which it had been brought by the Christian Church.

Mohammed was born of poor parents at Mecca towards the end of the sixth century. Left early an orphan, he was brought up by an uncle. He was a good boy. At a marriageable age he was sent to act as master of the camels of an elderly woman who traded in Syria. This woman fell in love with her young servant and married him. At forty years of age he was the father of a family, with married daughters. Later he had many wives, and is said to have excused himself for beating one by saying that he flogged her as a woman, not as his wife. Some authors say that he was subject to epileptic fits, and that, being ashamed of this infirmity, he pretended that he fell into convulsions because he could not support the glorious sight of the angel Gabriel, who came from God to inform him of things concerning religion.

**THE FLIGHT OF MOHAMMED WHO TAUGHT THE RELIGION OF THE SWORD**

In any case, he certainly had swoons; and he certainly, on account of his visions, became a feared and honoured person. Disciples gathered about him.

The magistrates of Mecca, fearing an

insurrection, determined to put a stop to his ravings, whereupon Mohammed made his famous flight from Mecca to Medina. Here he determined to assert his religion by the sword, and, gathering an army about him, went to and fro, attacking cities and caravans on the road, until at last, after some years, Mecca itself fell into his hands. He died three years after.

It is certain that Mohammed's followers became enthusiastic in devotion to one God, Allah. It is certain that much of Mohammed's teaching is borrowed from the law of Moses. It is almost probable that his ideas were influenced by the primitive teachings of Christianity. He rejected the Church; but he seems, in his own fashion, to have accepted Jesus. But his ideas altogether lack the exquisite clearness and the transparent purity of the Light of the World. They cannot be compared.

The Koran, the scriptures of Mohammedanism, is a wonderful book. Mohammed is supposed to have been inspired to dictate it, or to get it written, by the angel Gabriel. In it there are fables the most monstrous and horrible; but in it, too, there are occasional aspirations towards immortality, and expressions of repentance, which are beautiful.

**THE KORAN THAT RULES NATIONS AND PREVENTS THEIR PROGRESS**

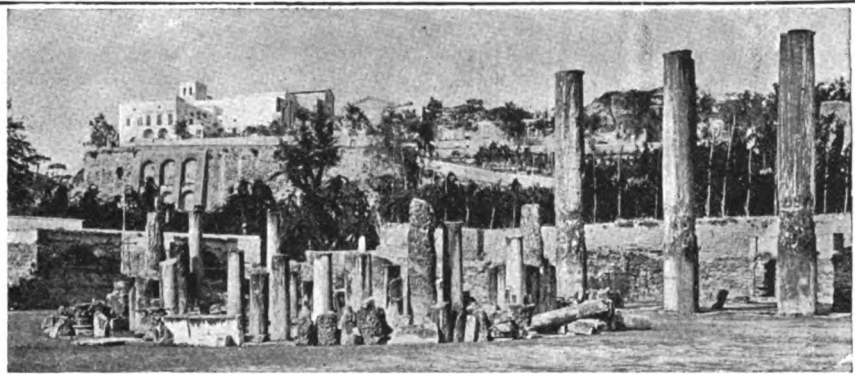
With all its faults, the Koran rules millions of the human race; but it prevents progress. On the whole, it is a book neither very profitable nor very pleasant for any but students of religions. And yet it is this book which Mohammedan children must use as almost their only school-book. Mohammedanism, youngest of all religions, is perhaps the one most distasteful to European knowledge.

The more one compares religions, the more brightly shines the pure and increasing light of the Bible; and, above all, the more we compare the founders of other religions with the pure and beautiful Christ, the more do we feel their utter unworthiness to be compared with Him.

All religions are a struggle from ignorance to knowledge, an effort of man to understand his Creator; but it is in the Bible alone that we seem to find hope.

The next Men and Women begin on 3079.





The Temple of Serapis at Pozzuoli, in Italy, was built by the Romans on the seashore. Slowly the land sank, until at last the sea invaded the temple, and marine creatures burrowed into the stone pillars. About 350 years ago the land again began to rise, and now the temple is above the water, as seen here.

## THE EARTH'S CHANGING FACE

**W**E have begun to learn something about the forces that have long been at work shaping the face of the earth, and we have made the very great discovery that those forces are at work still. When we read what is ordinarily called history, we make the greatest of all mistakes if we fancy that what men did, or said, hundreds of years ago, must be more important than what they are doing and saying now; and so in the history of the earth's face, the present is as important as the past, and the history of the future is now being made by tides and rivers, and rain and wind, just as the future history of mankind is being made by us.

What, then, do we find when we look at the face of the earth as it is at present? For the first answer to this we turn to our maps. As a rule we do not think that there is anything particularly wonderful about a map, but there is a great deal of human history of almost the highest kind printed upon a map, even a map that has no names upon it, and that is all printed in one colour. For ages past brave men, who have had a special genius for travel and adventure, have started out from home to search the earth. None of us, even by much

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thinking, can quite realise the courage and the faith of a Columbus, setting forth on untracked waters to find an unknown land. Thousands of brave lives, much thought, and wisdom, and patience, and faith have gone to the gaining of the knowledge which is expressed in a globe or in a map of the world. Those of us who stay at home, and take good care of ourselves, ought to remember this when we open an atlas.

Now, we are not going to consider here all the different colours which we see on an ordinary map of the world. Maps published in England, for instance, show much red, and we learn that red indicates the territory for which they who live in those little islands are responsible, and when we see how much of the world is so marked, we are forced to think what a solemn thing it is to be charged with such a responsibility.

There are other colours besides red, and we know that these colours stand for different countries, and the line between one colour, or country, and another is called a frontier. Now, one of the first things that we learn, when we study real knowledge, is that for science of the highest kind there are no frontiers, and that these different



colours in which our maps are printed do not mean everything for anyone who tries to do the highest kind of thinking. A great man, who travelled all over the world, once said : " I have travelled all over the world, and I have found only two kinds of people, men and women." We might add that if we travel all over the world, we find only one thing everywhere, and that is Nature. The laws of motion, and of light, and of chemistry, the laws of water, and of air are true everywhere, and the earth is a whole, which we must always think of as a whole ; just as mankind is a whole, and to be thought of as the child of the earth, even though we sometimes think of ourselves as a number of foolish little groups of people, hating and fighting each other.

Now, the first thing we discover is that the face of the earth is partly covered by water and is partly dry land. We know that about two-sevenths is dry land, and about five-sevenths water. The great masses of dry land we call continents, and the great masses of water we call the oceans.

#### **THE GREAT MOUNTAIN PEAKS THAT RISE OUT OF THE SEA**

There is land at the bottom of the oceans, and where this land rises high enough, as, for instance, in a sort of mountain range, we may find the peaks of the mountains coming up above the surface of the water, and forming a chain of islands. On the other hand, even in the middle of the continents, we may find deep places which are covered with water, as, for instance, in the great lakes of North America or the Caspian Sea in Asia. This distribution of land and water on the surface of the globe, we have lately learned, is constantly changing. There is no end to the evidence that proves this.

When we look at a map of the world and see the continents and the oceans, we must understand that what we are looking at is a map of the world as it happens to be now ; that our lives, or the whole period of written history, are but moments in the history of the earth, just as the whole history of the earth is but a moment in the history of the universe. We are gradually beginning to find out how it might be possible to make quite a different map, showing what the face of the earth was like,

perhaps a million years, or five million years, ago ; and we may even begin to learn something of what the face of the earth will look like in a million years to come. It is probable that, on the whole, the surface of the earth from age to age is getting rather drier.

#### **HOW THE EARTH IS DRYING UP AND BECOMING LIKE THE PLANET MARS**

New water is being made on the earth ; but more is being lost, for as a planet like the earth gets older, more and more of the water sinks through its crust, and leaves the surface. When we make a careful study of the planet Mars, which probably has yet a great deal more to teach us about our own earth than we have learnt already, we believe that Mars shows us what the earth may one day become, and probably the moon teaches us the same lesson. The whole surface of Mars is now very nearly, though not quite, dry. There is not much water upon it except at its Poles.

But though this is probably true of the earth as a whole, and though there was probably never more dry land on the earth than there is now, yet there may have been areas of dry land once, in places where now the ocean rolls ; while, on the other hand, great stretches of the present continents must have been under the water. We have some evidence of a lost continent which is specially interesting because it has to do with the history of our own distant ancestors.

When we look at a map of the world, we see running down from India, through Siam and the Malay Peninsula, a great broken chain of islands which leads to Australia, the biggest island of them all. This great island is so big that it is really a continent, though, of course, it is not so big as the continent of Africa, which mankind lately made into a great island by cutting the wonderful Suez Canal.

#### **A MIGHTY CONTINENT THAT LIES LOST AT THE BOTTOM OF THE SEA**

When we study Australia and the islands which lie between it and Southern Asia, we begin to learn that very probably there was once a great continent there, and that all these islands, smaller and larger, really represent the highest parts of that lost continent. When, too, we study the kinds of life that are to be found in Australia and these islands, we are more sure than ever that they must have begun to be developed on a single

great continent, and when we examine still more closely the peculiarities of the living creatures in Australia itself, we can even begin to guess about how long ago it was that Australia was made into an island and cut off from the rest of the world. Of course, as we read this, we shall keep a map of the world before us. Now, in the northern part of this vast district—as, for instance, in the islands of Sumatra and Borneo—we find some wonderful kinds of monkeys, of which we may see living specimens at the zoological gardens in cities any day. These, we can prove, are more closely related to our own ancestors than any other living creatures in the world. So it is possible that, long ages ago, the ancestors of mankind lived on this lost continent, and that there mankind first saw the light.

Thus we come to the first of the great questions which face us, directly we realise that the land and water of the earth are always more or less changing places. What are the forces which lower a continent so that part of it becomes the bed of the ocean, and what are the forces that can raise the shallower part of an ocean so that it becomes a continent? There are no more important questions for this branch of knowledge, and I fear that there are scarcely any more difficult to answer.

#### THE MYSTERY OF THE RISING AND THE FALLING OF THE OCEAN FLOOR

If we were merely to ask what it is that is eating away, for instance, parts of the east coast of America, then there would be no difficulty, for we can see the process going on under our own eyes, and we see that wind and water account for it. But if we are to discover what happens to make the loss of a whole continent, it is evident that we require some deeper explanation than this kind of thing. Deeper is exactly the word, for it is quite evident that nothing acting on, and at, the surface of the earth could produce such tremendous results. The surface forces of wind, rain, air, and water can, after all, only affect the surface. It is quite plain that they could not possibly raise the bottom of the ocean so that it became dry land, nor push down a whole continent so that the ocean rolled over it. We must find some forces that act at a deeper level.

Now, we know quite well that if we

constantly shovel rubbish into a deep space, in time we shall fill it up. It might be that the floor of the ocean was gradually heaped up with something from age to age until at last it came to the surface; and we know that the floor of the ocean does get heaped up by the remains of living creatures, and that the same matter that makes the chalk cliffs of the English Channel is being heaped up at the bottom of the Atlantic.

#### THE SEE-SAW OF THE EARTH'S CRUST THAT GOES ON FROM AGE TO AGE

But the average depth of the ocean is two and a half miles, and it is quite certain that it is not this process which accounts for the making of continents from the ocean floor. It is not that anything is heaped on the floor, but that the shallower part of the floor itself is raised up. Besides, if this were the explanation, it would still leave us unable to account for the other thing that happens—the sinking of the continents. The more we come to study this question, the more we see that the real explanation, whatever it be, must be one that explains both processes. Something goes on from age to age which at one place raises the level of the earth's surface, and at another place lowers it.

It is a kind of see-saw process. Water, of course, being fluid and able to run, and being pulled by the attraction of the earth, always goes as near the centre of the earth as it can; so if the level of the solid crust falls low enough at any place, the water runs there; and if, on the other hand, the level is raised, the water runs off it. Therefore, the presence of the water, which we call the ocean, simply marks the deeper places as compared with the higher places of the earth's surface. What we need to do to get a real understanding of the question is to try to get an idea of what the earth's surface would be like if all the water were taken away. Then we could understand its real shape, its ups and downs, its depths and heights.

#### THE CHANGES IN THE EARTH'S CRUST AND THE UNSEEN FORCES THAT CAUSE THEM

What is it that makes the deep places deep, the high places high, and that sometimes raises the first and lowers the second? This is a far better and truer way of looking at the question than we can get if we have the presence

of the water always in our minds. At once we learn that what we are studying is really the shape of the solid earth and the reasons which produce that shape and change it from age to age. The second great thing we learn is that the causes of all these tremendous changes that show on the surface are at work underneath the surface. The surface means a lot to us. All life is its child. But, after all, if we could drain all the water away, we should find that the outside of the earth is merely a thin crust, probably not more than forty or forty-five miles thick at the most; and the movements of this crust up and down—which have such tremendous consequences, throwing the water outside it from one place to another, turning oceans into continents and continents into oceans—are due to the gigantic forces that are ever at work in the interior of the earth. That is what we mean when we say that we must find a deeper explanation of these surface changes. At last we have got deep enough.

**WHAT WOULD HAPPEN IF THE EARTH WERE QUITE ROUND LIKE A BALL**

Now, first of all as to what is the real shape of the solid earth at the present time. What would it look like if we could dry it—run all the water off it, so to speak, and hold it in our hands? For instance, would it be round, like a ball? We may be perfectly certain that it would not. If it were round, like a ball, the water would cover it equally all over; the whole surface of the earth would be one waving ocean, and life would have had to develop, as far as it could, either under the water, or floating on the surface of it. We have already learnt that life could not have advanced far on such an ocean-covered earth.

Then what is the shape of the solid earth if it is not round? Perhaps a map of the world or a globe will teach us something. When we look at such a map, almost the first thing that must strike us is that by far the greater part of the land is to the north, and that by far the greater part of the water is to the south. Now, that is very interesting and peculiar. There is no reason why we should have expected it, and probably it must mean something. There is such a thing as chance, which has its own proper laws; but the laws

of chance would not account for the peculiar distribution of land and water on the earth at present, any more than they would account for the remarkable number of spiral nebulae in the sky.

**HOW THE CONTINENTS AND COUNTRIES OF THE WORLD TAPER OFF TO THE SOUTH**

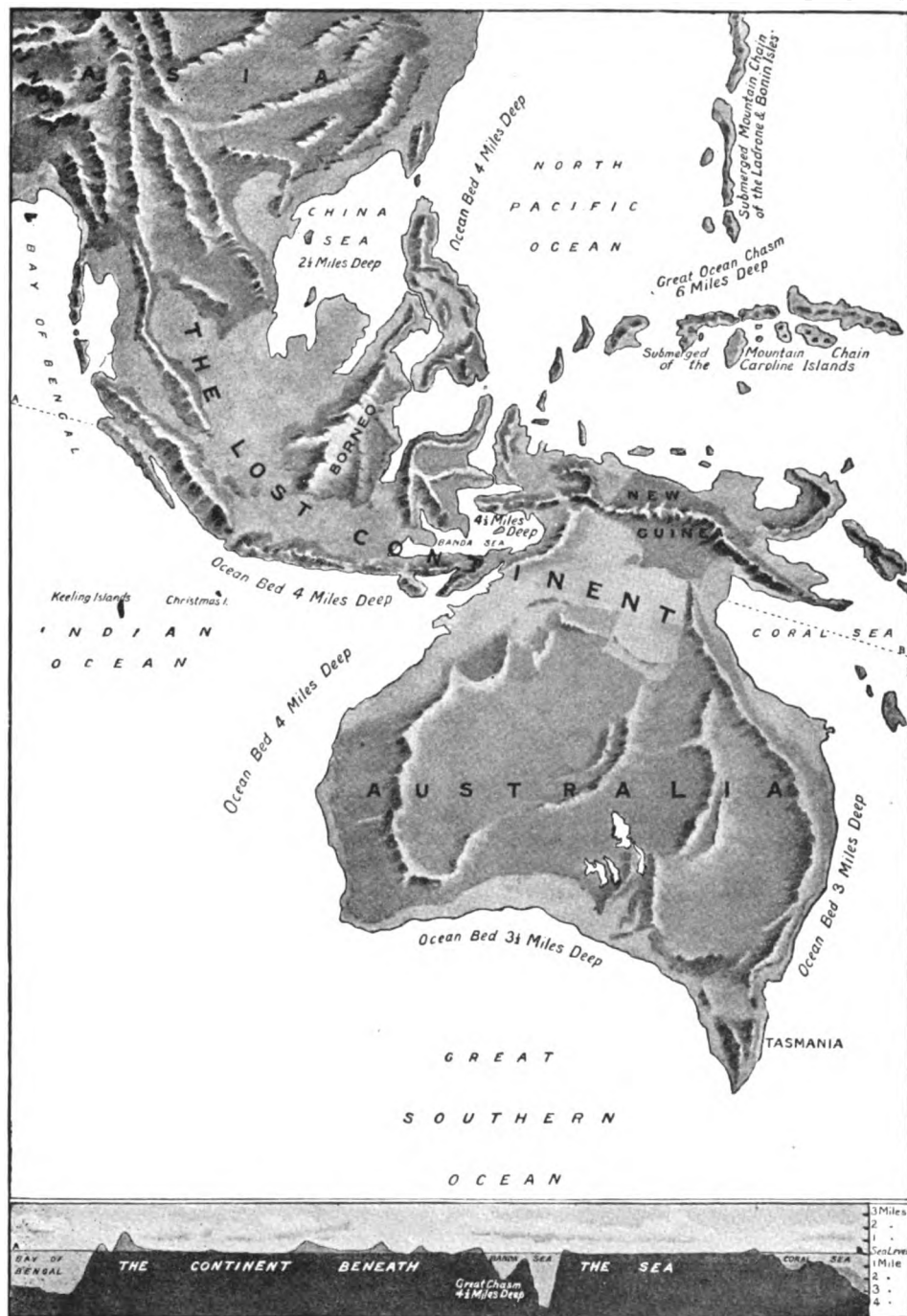
And then we notice another thing. It is that, in general, when the land does run down into the south, it gets narrower as it runs down. We see this almost everywhere. Always there is this tendency for the land to run down in tongues to the south. Look at the shape of Greenland and of South America; look at the shape of Africa; look at the shape of India; even look at the shape of Asia, and the lost continent that ends in Australia as seen in the map on page 3007. We see that it gets narrower as we go south. And if we imagine Tasmania joined to Australia, as it once was, we see that Australia itself runs southward almost to a point. Here is something which must have a meaning.

This deeply interesting and important study is now being carried on by men in different continents, and they are really as yet only in the middle of their work; but it is so important, and will certainly be so much more important, that I am quite certain we ought to understand it as far as it has gone, though we shall not find very much about it in any books in English, or in any other language. These students have made various imaginary maps and models of the earth, showing what the shape of the land would look like, and how it would be distributed, if the level of the ocean were different from what it is at present, say, a quarter of a mile deeper, and so on. They are able to do this because nowadays the bottom of the sea has been very largely mapped out over the greater part of the world, and we know where it is deep and where it is shallow, and what parts would appear above the surface if the water were drained to different levels.

**THE SHAPE OF THE EARTH, WHICH IS LIKE A BIG PEAR AND NOT LIKE A BALL**

All this work, which is exceedingly difficult, and has taken many years already, inclines us to the belief which we might have begun to guess at directly we saw how much water there was to the south, and how much land to the north, namely, the belief

# A CONTINENT THAT HAS SUNK FROM SIGHT



If we look at a map of the world, we see a long chain of islands between Asia and Australia. It is thought that millions of years ago all this land was joined together and formed a mighty continent; but the land gradually sank and the sea rushed in, so that only the mountains remained above the water, and they now form the islands of the Pacific. If the sea were to sink only 400 yards, we should again be able to live on the lost continent, which is shown restored in this map. Very deep water surrounds the continent on all sides, as may be seen in the lower picture, which shows a section of the lost continent across the line from A to B on the map.

that the solid earth is roughly pear-shaped, with the most bulgy part inclined rather to the north, and the tapering part inclined rather to the south. We must not imagine that the pear runs exactly north and south, nor are we to think of it as at all a perfectly regular pear; but, all the same, this theory of a "pear-shaped earth" almost certainly represents a great advance in our knowledge of the earth's history, and even its future. It is not possible, except for those who have devoted years to mathematical studies, to explain the supposed causes which have produced this pear-shape. At any rate, we are to think of the great oceans as clothing this pear in such a way that, when they are added to it, it becomes a fairly regular round ball.

Working away all the time, and never to be forgotten, are the mighty forces under the earth's crust. It is these which, if we really understood them, as we have scarcely yet begun to do, would explain to us why the level of the surface heaves up and down. We could not understand this if the crust of the earth were made of the same substances everywhere, and were of the same thickness everywhere, and if the solid earth itself were perfectly round.

#### **HOW THE EARTH'S INTERIOR SHRINKS AND THE CRUST WRINKLES INTO MOUNTAINS**

Then the results of what is happening inside the earth, which is that it is shrinking, would show themselves equally everywhere. But the crust of the earth is not made of the same materials everywhere. It is probably very much thinner in some places than in others; and, being pear-shaped, the strength of gravitation is different at different places. All these reasons help us to understand why, as the interior shrinks, the earth's crust does not slowly settle down upon it in all directions, and why the crust gets wrinkled into mountains, gets cracked, tilted and twisted, crushed and stretched, and is even heaved up and down from age to age.

One of the greatest pieces of work for the future of science is to understand what is really happening inside the earth, and to find out what is really the structure and composition of the earth's crust. Until this is done, the study of geology is, after all, only a study of little things on the surface. It is as if we were

to try to understand the history and the life and the movements of a human being by looking simply at the outside of him with all his clothes on.

#### **A HOLE THAT WOULD TAKE A CENTURY TO DIG AND COST MILLIONS OF DOLLARS**

It has been reckoned that in less than a century, if mankind worked very hard, and spent several hundreds of millions of dollars, we might make a hole in the earth perhaps ten miles deep. Even that is only a guess, because no one knows what we should come to before we had got half as far, or even a third as far. We might get a supply of steam, but even then we could learn very little; and to descend such a hole would be certain death.

The really marvellous thing is that men of science are able to learn as much as they do within the narrow and strict conditions that confine them. It is a marvellous thing that we should know the very weight and properties of the atoms in a star that is billions of miles away, and no wise person will venture to declare that we shall never learn the great facts about the inside of our own earth. New ways of learning are open to us as the generations go on. Only within the last few years we have discovered radium and what it does. We have now detected it in the crust of the earth; we have reckoned the proportion of it, to some extent, in the various things that compose, at any rate, the outside of the crust of the earth, and we are just beginning to understand how this element, by its never-ending production of heat and electrical forces, must be at work, changing and shaping the earth's crust from age to age.

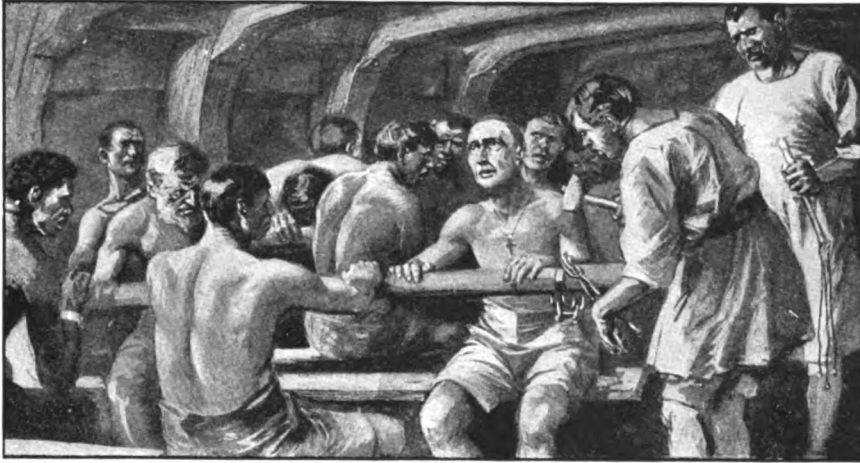
#### **HOW THE GROUND RISES AND FALLS TWICE A DAY EVERYWHERE**

Still more recently French and German scientists have declared their discovery of tides in the earth's crust. They tell us that twice every twenty-four hours the solid crust rises and falls as much as eight inches, but, of course, we do not notice this any more than sailors in a ship feel the tides of the sea.

These are the deepest and most difficult questions, though also the most important. We shall next go on to study other matters which are nearer the surface upon which we live, and which, therefore, we better understand.

The next part of this is on page 3071.





## THE FRIEND OF THE SLAVES

ABOUT three hundred years ago, at a time when the ships of those days ventured out of port in hourly dread of attack by sea-robbers, a French vessel coasting along the Gulf of Lions was seized by three African pirate corsairs. They killed the captain, and the crew and the passengers, including a young priest, Vincent de Paul, were chained and shut up in the hold.

The prisoners were cruelly treated, though many of them were suffering from wounds received in defending the vessel. Being landed at the port of Tunis, they were sold as slaves in the market-place. The young priest did all he could to encourage his fellow-prisoners. He was sold to a fisherman, and then to a Moorish physician, who took a liking to the clever youth, and promised him freedom, and a life of ease and honour, if he would turn Mohammedan. But he replied that he preferred slavery to giving up the Christian religion. Soon after that his master died, and he was sold again to a native of Venice, who had not withstood the same temptation to renounce his religion.

Now, Vincent de Paul did the work of a field labourer on his master's farm. He talked to his master's wife; and when she discovered through him

CONTINUED FROM 2932



what a true and beautiful religion her husband had given up, she was grieved, and persuaded him to become a Christian again.

That was a dangerous thing for him to do in a Moorish country, so the master and his slave escaped alone in a small boat to Europe.

Vincent de Paul's life was full of change, and he seems to have done kindnesses to numbers of people he met. He visited and comforted the sick in a Paris hospital, and at one time acted as tutor in the family of Count de Joigni, who had to inspect the convict ships, or galleys, as they were called, in the harbours.

The poor priest knew what it was to be a slave, and his heart was stirred to pity at the sufferings of the miserable convicts. He could not rest till he had gained permission from King Louis XIII. to do what he could to help them and to give them alms. So he became the king's almoner.

In visiting a gang of convicts at Marseilles one day, he found a poor broken-down man in chains, and despairing at the hardships his wife and children were enduring while he was unable to care for them. Many convicts were unjustly punished for quite slight offences, and ought to have been free. It is possible that this man ought

to have been at liberty; at any rate, Vincent de Paul thought so; for, unable to bear the sight of the convict's misery, he made up his mind to do a very noble and unselfish act—to change places with the man. He knew the gaoler, and got permission to take the convict's place.

And so the chains were removed, as we see in the picture on page 3009, and put on the priest, who took his place in the gang of men. But he suffered so much from the rough life, hard work, association with criminals, and cruel pressure of his chains, that, though he was soon released, he felt the after-effects all his life.

Aided by his friend, the count, he won back the prisoners to hope and self-respect, and both worked hard to improve the prisons and galleys. Vincent de Paul devoted his life and his possessions to the service of the op-

pressed. He collected money, and with it bought and freed 1,200 slaves. He started the Order of Sisters of Charity who do so much good in France, visiting the sick and taking care of helpless children and aged people. He influenced for good the King and Queen of France. He got the king to persuade the Dey of Tunis to let him establish a mission to the Christian slaves of the Moors in North Africa. The Brothers of St. Lazarus, as the missionaries were called, arrived there in the midst of a plague, and nursed and helped both Christians and Moors.

It was many, many years before the English and French fleets succeeded in doing away with piracy in the Mediterranean; but it was largely owing to the interest in the matter roused by Vincent de Paul that the traffic in slaves was finally stopped.

## THE APPRENTICE BOY AND HIS MASTER'S CHILDREN

AT the time when boys were apprenticed to a tradesman to learn a business or craft, a boy was learning to be a gunsmith in a port in the West of England. He was a boy whom his master trusted, for one day he left him to take care of the house and the four little children, while he and his wife went to visit a village near by.

While the boy was busy serving customers, the children were playing together in the room behind the shop. All went well until, after one man had stayed chatting some time, the apprentice thought the childish voices had been quiet a long while. He listened, but heard only a far-away little murmur.

Then he grew rather anxious, wondering where the children could be. After calling them several times, at last there came an answer, which made him run to the top of a ladder leading down to the cellar under the shop. On shouting down the ladder, the little ones told him with glee that they were playing shops, and had lighted a candle.

That might have been a harmless game, but when the apprentice heard what was going on he was filled with horror, for down in that cellar gunpowder was stored. As fast as he could, the boy hurried down into the cellar, and there he found his fears confirmed. The dangerous powder was doing duty

for tea and sugar, and being put into pieces of paper, as the children had seen done in the grocer's shop.

But that was not the worst of the play. The children had found a piece of candle-end, had pushed the cover of the barrel of gunpowder half off, and had placed the lighted candle-end upon it.

Any moment they might all be blown up. Here was opportunity for the display of presence of mind and great courage.

"Run and see if father and mother are coming!" cried the boy. "Make haste!"

He said just the right thing. The children loved their parents, and they were obedient. If they had not obeyed instantly, but had stopped to finish measuring out that dreadful sugar and tea, they would have been killed, for the candle was flaring down near its end. But they rose from the ground, clambered up the ladder, and ran out into the street.

The brave boy down below, protecting the candle-flame with his hands, listened intently till the patter of the little feet overhead had ceased. Then, with the greatest care, he lifted the guttering candle-end, and though it burnt his fingers, he carried it very slowly, very carefully to the foot of the ladder, and climbed into safety. His wonderful coolness and presence of mind had prevented a terrible calamity.



## ITALY, THE LAND OF ROMANCE

INTO the blue, tideless Mediterranean Sea three large peninsulas point southwards.

They are the Iberian Peninsula, consisting of Spain and Portugal, very solid in shape, on the west; the Balkan Peninsula, with its very jagged coasts, on the east; and between them lies the long, narrow peninsula of Italy, in shape very much like a fisherman's boot. At the point of the toe is the island of Sicily.

Let us look well at the shape and position of Italy, for they have largely influenced its story. Owing to its long, narrow shape, the various districts have always been much cut off from each other, and with its immense coast-line no part of Italy is more than seventy miles from the sea. Its central position gives it command of both the east and west basins of the great inland sea, as well as the keys of the passes in the Alps, which separate the northern part of the country from Central Europe.

Hence, in the very far past, when the "world" consisted of the countries bordering the Mediterranean and the great nations of the East in Asia, Rome, in the middle part of the middle peninsula, gradually rose to be mistress of that world. Later, all through the years when the European countries were growing into their present shapes, continual wars were

CONTINUED FROM 2908



The King of Italy

waged for the possession of the country whose "gates" were so important both for trade and for conquest.

We read on page 2962 of these passes over the Alps, and of the wonderful tunnels that have been recently made right

through the mountain masses, by which trains now pass rapidly from France and Switzerland into Italy. Wonderful and interesting as it is to rush through these long tunnels, the more beautiful way to enter Italy is the old way over the passes, which people often do now by motor-car. It is a steep climb out of Switzerland, by zigzag roads, ever up and up, and in and out through beautiful valleys, by the slopes of great hills, with their forests and waterfalls.

Then comes the region of snow and ice, and at the top of the pass a pause must be made to enjoy the view of the mountains sloping down to the vast level plain beneath, whose green pastures and woods, watered by the River Po and its tributaries, melt into the blue haze of the far distance. Descending into Italy, the snow and rocky heights are left behind, and the travellers pass into a soft, warm air and a smiling, sunny country, where bright flowers make gay with colour the little white villages and fine villas, and fruitful vines grow twined round mulberry

trees, and luxuriant orange and lemon groves give out their sweet, faint scent.

We can see from the map how the great sheltering Alpine range circles round this wide north plain of Italy from Austria to France. The high land then becomes the chain of the Apennines, which bound the south of the plain, separating it from the Gulf of Genoa, and then, turning southwards, run throughout the entire length of the peninsula for some 800 miles, and end in the wonderful volcano, Mount Etna, in Sicily.

The green, round-topped Apennines are little more than half the height of the Alps, and on them grow pines and chestnuts; flocks and herds feed on the pastures, and in the fields grow all kinds of crops. The position of the range, more or less near the middle of the long peninsula, gives but little room for the course of the rivers. Most of them run down straight to the sea, but in the western plain, where the mountains lie near the east coast, there are two famous rivers, rather longer than the others, the Tiber and the Arno.

### THREE FAMOUS RIVERS ON WHOSE BANKS STAND MANY SPLENDID CITIES

The Tiber is about 50 miles shorter than the Hudson. On it stands Rome, so old and so grand that it is called the "Eternal City." On the Arno stands beautiful Florence—the city of flowers—of whose glories we read on page 2779. It is only in the north continental part of Italy, in the wide plain encircled by the Alps and Apennines, that there is room for a long river such as the Po to travel its 450 miles from its source, on the borders of France, to its mouth, in the Adriatic Sea. There are many splendid towns in the basin of the Po, and it has always been a fertile and flourishing district, except when ruined by cruel wars; for, in addition to its warm climate, it is well watered and served by its large river, navigable for 200 miles, and its many tributaries. Steamers pass to-day from the sea to the beautiful lakes of Maggiore and Como, which, with many others, nestle round the feet of the giant Alps. Poets and painters delight in the wonderful scenery of these lakes, which attract thousands of visitors every spring, when east winds are raging in North Europe, and summer seems very far off. But summer comes early south of the Alps, and it is indeed a joy to go

in a boat on the blue lakes and look up at the crags and white peaks, or follow the winding roads among the woods at their edges, or sit still in a lovely garden overlooking all this beauty, softened, as it often is, by a dreamy golden haze.

### A PROSPEROUS AND UNITED KINGDOM NOT YET FIFTY YEARS OLD

To-day, this country of the great north plain, and the long peninsula, with its backbone of mountains, together with the islands of Sicily and Sardinia, form one united kingdom, about twice the size of the State of Florida, and the city of Rome is its capital. The real beginnings of Rome lie more than 2,500 years back, and we read of the old Roman Empire in another part of this book, but the united kingdom of Italy to-day is not yet fifty years old. As we study the map of Italy, we notice that there are various provinces, such as Lombardy, with Piedmont and Venetia each side of it, in the north; Tuscany, Campania, Calabria, and several others in the peninsula itself. These are the survivals of the many different states which existed in the past, sometimes independent, sometimes crushed under neighbours or foreigners, but never really united under one ruler from the days of the grand old Roman Empire until 1870.

We remember in the story of Great Britain, told on page 198, how hurriedly and urgently the Roman soldiers were called home from the walls and camps of Britain to defend not only Italy, but the great heart of the empire, Rome itself, against the wild hordes who were then streaming down the peninsula. These Goths entered the splendid city, and did so much damage to it that to this day we speak of a rough person, who does not understand or care for beautiful things, as a Goth.

### HOW THE FIERCE GERMAN TRIBES SWEEP THROUGH THE WHOLE LENGTH OF ITALY

Before this calamity, the empire had been divided into two branches, Rome remaining the capital of the Western emperor, Constantinople, or Byzantium, becoming the capital of the Eastern emperor. Presently the line of Western emperors came to an end, and the Eastern emperor appointed an officer to rule for him over the West. And so the old empire became less and less able to resist the wild enemies that poured in on the unhappy country.

# ITALY, THE LAND OF SUNSHINE AND SNOW



In a map, Italy has the curious appearance of a man's leg and foot about to kick Sicily through the Straits of Gibraltar into the Atlantic Ocean. The country is very mountainous, for right down the middle run the snow-clad Apennines, and in the north the towering Alps act as a protecting barrier from invaders. Hannibal and Napoleon, however, found the Alps no bar to their conquering progress. When Austria ruled in Italy, an Austrian statesman said that Italy was merely "a geographical expression," meaning that this country united under one sovereign and one government was unthinkable. But half a century later the apparently impossible was realised, and Italy is now one country not only geographically, as we see here, but one in thought and action.



There were the Lombards, a German or Teutonic tribe, ever pressing southwards from the Elbe to the Danube, and thence into the rich north plain of Italy, which is called after them to this day. One of their victorious kings marched right down the country to the very point of the toe of the "boot," and, touching with his lance a column on the seashore, said, "Thus far shall stretch the bounds of the Lombard kingdom."

**THE POWER OF THE ANCIENT EMPIRE  
WANES AND THE POPES GROW STRONGER**

But he was mistaken; the Lombard kingdom lay chiefly in the basin of the Po. The wisdom and noble-mindedness of the Bishop of Rome of those days—he was the sixty-fourth since St. Peter—kept the Lombards in check for a time. This was Gregory the Great, the man who had felt such pity for the beautiful Angle children, desolate in the slave market, where they were exhibited. He accustomed the people to the idea that the head of the Church could also look after the affairs of State, and so it came to pass that, as the old power of the ancient empire flickered out, the new power of the Bishops of Rome began to grow.

We have seen, on page 2524, the popes who succeeded Gregory calling in the help of the Franks against the Lombards, and this led to Charlemagne, their king, being crowned Emperor of the Holy Roman Empire by the pope. It was a kind of revival of the title that was dead and gone, but the power was never the same as of old.

In the centuries after Charlemagne many foes descended on the long, narrow peninsula, which received but little help from the shadowy emperors, who lived chiefly across the Alps.

**HOW THE EASTERN TRIBES AND NORMAN  
SEA-ROVERS OVERRAN THE SOUTH**

There were the Mohammedan Saracens, or Arabs, who overran the southern lands and the beautiful island of Sicily, and plundered the rich cities they found there. The Magyars, or Hungarians, made many inroads on the north before they were driven back and made to settle round about the Danube.

Then, about the time when Duke William of Normandy was planning the conquest of England, Hasting, another Norman leader, brought his bands to South Italy and Sicily, and they won nearly all the lands that still owned

the sway of the old Eastern emperor. To this day the beautiful round-arched Norman churches, like those in the north of France and in England, speak of the presence of these daring sea-rovers in the far Sunny South.

There was little peace in those days. The various states of Italy were generally at war, and bent on seizing each other's dominions, and they cared less and less to have a German emperor over them. The tie was a very loose one, though occasionally there was a grand coronation at Rome, and the stronger emperors, such as Barbarossa, now and then came over the Alps with German soldiers to ravage and kill their Italian subjects. But the power of the Church, from its head to the lowest of its clergy, went on steadily increasing. Great possessions were left to the popes, so that in time they ruled over a large tract of country, the Papal States, or States of the Church, and large estates everywhere fell to the bishops and abbots. Then, as the clergy were better educated than most of the people, and more fitted for public business, by degrees they filled all the chief offices of State.

**THE RISE OF THE GREAT TRADING CITIES  
AND WHAT THEY DID FOR ITALY**

We have seen in the history of Germany how soon the popes and emperors began to disagree. There was Henry IV. at Canossa, of whose submission we read on page 2526, and Barbarossa at Venice; indeed, for centuries the chief part of the history of the times is the account of the quarrels between the two heads of Christendom.

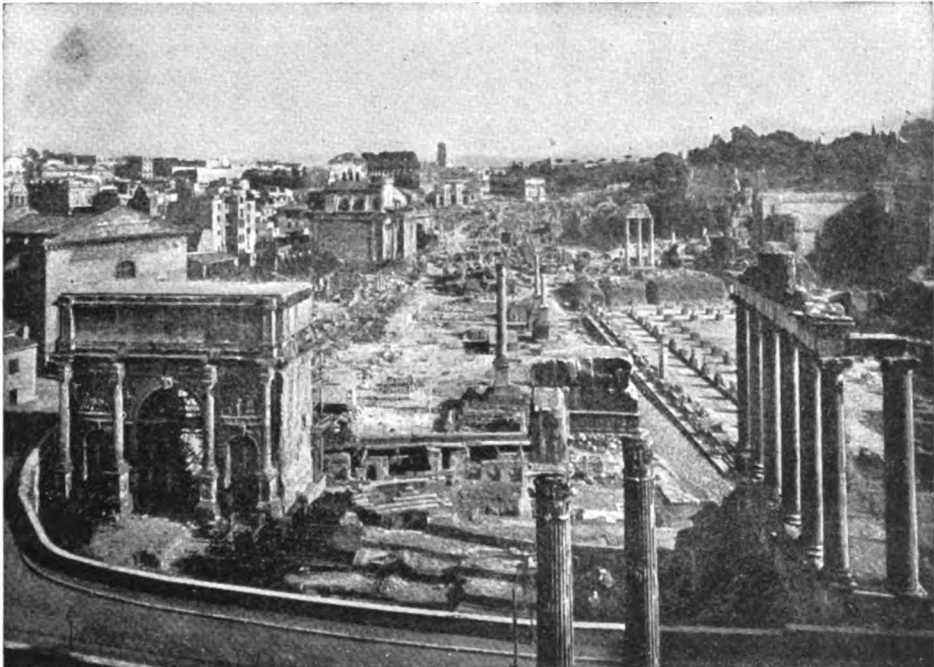
From the tenth century onwards the great cities of Italy played a large share in its story. When so many wars and disputes were going on, it was necessary to fortify and hold them against one side or the other, and often they managed to get privileges given or confirmed as a price for their help, till at last they became practically free, and governed themselves. They became, too, very rich from trade as the years went on, and splendid cathedrals rose up, as well as magnificent palaces and houses, all filled with the works of art that have made Italy so famous.

Let us turn now to the chief of these old towns, to read in them the many-sided story of the Middle Ages in Italy.

## ROME OF TO-DAY AND ROME OF THE PAST



Even in ancient times, Rome, the city built on seven hills, was known as the Eternal City. As the centre of the mighty Roman Empire, she was for centuries the mistress of the world; and though that empire fell, the Rome of the popes went on ruling the nations. Now, however, she is simply the capital of Italy, and the spiritual centre of the Roman Catholic Church. Here we have a panorama of the city as seen from the dome of St. Peter's.



Of all the magnificent architecture that adorned the Rome of the Cæsars, little remains to-day but the ruined Forum, seen here. The Forum was the centre of Rome. Here, with temples and tokens of triumph all around, the people of the world-conquering nation used to meet and declare their will. Now the scene, as shown in this picture, is a mass of ruins, buried for centuries and now revealed, fitting emblem of a departed empire.

We will start in the Plain of Lombardy with Milan, connected by canals with the River Po and Lake Maggiore. Here the Lombard kingdom was overthrown by Charlemagne, and Barbarossa three centuries later utterly destroyed it. But it rose again, and early in the fifteenth century was built the beautiful cathedral, of which we see a picture on page 619.

**THE DAZZLING WHITE BEAUTY OF ONE OF THE WONDERS OF THE WORLD**

One can well believe that the snowy pinnacles of the frozen Alps inspired the architect with the idea of this wonder of the world in white marble, with its slender shafts and sharp spires gleaming in the rich sunshine. Two thousand statues and the richest sculpture cover it from pavement to tower, and the dazzling white beauty of the whole reminds one of a glorious piece of frost work. Old palaces and monuments tell of the taste and power of the princely families who kept brilliant courts at Milan at the time of its greatest fame. In the sixteenth century Milan and the country round fell to Philip II. of Spain, the husband of Mary Tudor. During Marlborough's wars it passed to the House of Austria, who kept it till the middle of last century, except for the few years influenced by Napoleon.

On the way to Genoa we pass Pavia, the old capital of the Lombards, situated where the River Ticino falls into the River Po. In a very old church here, Barbarossa and other German sovereigns of the Middle Ages were crowned with the famous old Lombardy crown, in which is an iron fillet said to be made from one of the nails of the Cross.

**THE BOLD SAILORS OF GENOA WHO DEFIED A FRENCH KING**

Genoa lies on the sunny slopes rising from the Mediterranean. It had a long and eventful history before the time of the Crusades, when a busy trade arose with the eastern part of the Mediterranean—the Levant. Its merchants became very rich, and a beautiful cathedral, with the front of black and white marble, was built, as well as many other churches and fine palaces. The Genoese were brave and daring sailors, and many settlements were made by them round distant parts of the Mediterranean. They had many struggles with Venice, which sorely defeated them at the end

of the fourteenth century. The famous Christopher Columbus was born at Genoa, and many other seamen of the town found their way out of the narrow Straits of Gibraltar to the opening-out world of the South and West. For many years the city was torn in two by the quarrels of the great families who ruled it, and the Turks finally conquered its Eastern possessions as its power went down. But there was still a bold spirit left in the Genoese. When Louis XIV. commanded their alliance they refused, and did not submit till their fine city had been cruelly bombarded. A century later, Napoleon first formed it, with the land round it, into the Ligurian Republic, and then annexed it to France, after which it was joined to the kingdom of Sardinia.

Its great rival, Venice, lies on 117 small islands in a shallow bay on the north of the Adriatic. Its first inhabitants had fled to this retreat to be out of the way of the savage invaders who swept into the fruitful north plain. They became sailors and traders, and their city and territory grew rapidly, for, owing to its position, it became a depot for trade between East and West.

**VENICE, THE WONDERFUL FAIRY CITY THAT RISES FROM THE SEA**

No labour has been too hard for the Venetians; they drove strong piles into the muddy islands, and when the foundation was strong enough they built on it houses, and, as time went on, palaces of stone and marble, enriched by sculpture and work in mosaic, such as we see on page 1990, and stored with paintings and treasures of every kind brought home by their ships from the East. There are now nearly 400 bridges over the 150 canals which form the "streets" of this marvellous city. Boats are its carriages, for the water washes the very doorsteps of its houses.

Standing in a large square, or piazza, before St. Mark's, there is a fine view of this cathedral, of which there is a picture on page 619. It has no towers, no spires, but, after a fashion borrowed from the East, is crowned with domes. There are hundreds of marble columns and splendid statues, and over the chief portico rear four fine gilded bronze horses, brought to Venice by one of the Doges about the time King John of England was struggling with his barons

# VENICE, THE FAIRY CITY OF THE SEA



VENICE, THE QUEEN OF THE ADRIATIC, AS PAINTED BY THE GREAT ENGLISH ARTIST, TURNER



A REGATTA ON THE GRAND CANAL AT VENICE, FROM A PAINTING BY TURNER



THE GRAND CANAL, WITH THE CHURCH OF SAN GIORGIO MAGGIORE ON THE LEFT  
 Venice is one of the most wonderful cities in the world. Its splendid palaces and churches rise up among the salt waters of the great lagoons near the Adriatic Sea like a picture of fairyland. Its canals are busy with gondolas, its queer little streets crowded with people; its domes and towers shine and glisten in the glorious sun against a sky of radiant blue. This was just the place for fairy stories to come from, and here, four hundred years ago, many of the favourite fairy tales were first written and printed.

The photographs on these pages are by Messrs. Russell & Sons, Underwood & Underwood, London, Hanfstaengl, Mansell, Anderson, & Alinari.

and the pope. These fine horses have a wonderful story. They were made by an unknown artist in Greece, and were taken to Rome, where they crowned the triumphal arches of two emperors; they were taken from Rome by Constantine, to his new capital, Constantinople; they were brought back to Italy by a Doge of Venice; they were carried away to Paris by Napoleon, and afterwards given back to Italy. These horses have thus adorned four of the world's greatest cities, and to-day they add glory to one of its most glorious buildings. The inside of St. Mark's is even more wonderful than the outside, with the gold mosaic of the domed roof and the many-coloured marbles of the floor and walls.

#### THE EVIL DAYS THAT CAME TO VENICE, AND THE FAME OF BOLOGNA

The Palace of the Doges is close by, and one likes to imagine the glorious processions as the Great Duke or Doge, head of the Republic, wended his way in state to the cathedral, or to his magnificent barge when he went each year to drop a precious ring into the ocean, to show the close union between Venice, the Queen of the Adriatic, and the sea, to which she owed her safety and her riches.

But evil days came to beautiful Venice as well as to the rest of the Italian cities. It passed the height of its glory after its bitter war with Genoa, when its fleets commanded the Mediterranean. The Turks were for a long time cruel enemies, and the discovery of the sea routes to India lessened its trade. For many years, too, there were great conflicts to be faced with Austria, Spain, and France. In the struggles between France and Austria, in Napoleon's time, Venice was seized and given to Austria. It was fifty years before it regained freedom, and in 1848 it once more became a republic.

On our way from Venice to Florence we pass many interesting old cities, famous for their cathedrals and universities, and other relics of the past.

#### FLORENCE, THE WONDER CITY OF THE MIDDLE AGES

Amongst them is Bologna, a very old and rich town. Students from every part of Europe flocked to its famous university as far back as the times of the Norman Conquest. Long quarrels between the nobles who ruled the city were at last ended by the popes

adding it to the States of the Church. Florence lies among the spurs of the Apennines by the River Arno, on the great route from Upper Italy to Rome. Vineyards and orchards and cornfields surround it in peace now; long ago, both streets and countryside echoed with the shouts and cries of battle, when the great rival families of the Guelphs and the Ghibellines struggled to be first. In the midst of the din, full three hundred years before Shakespeare lived in England, another great world poet, Dante, lived and wrote in Florence. At last the merchants, so successful in industries such as wool, silk, and fur, put an end to the ceaseless conflicts by taking the government in hand. A time of prosperity then set in, during which Florence was looked upon as the money market of Europe. A great family called the Medici had immense influence not only in Florence and Rome, but in Europe beyond. They were clever, and did not mind what means they used to get their ends, but their rule promoted progress.

Florence is one of the most wonderful places for art in the whole world, and we read about the great men who made it so on page 2779. The Medici kept their power till Tuscany passed under the power of Austria near the middle of the eighteenth century.

#### ROME, THE ETERNAL CITY, AND THE GREAT CHURCH OF ST. PETER

A near neighbour of Florence, and also on the Arno, is Pisa, famed for its leaning bell-tower, of which there is a picture on page 305. It has stood over 800 years, a vast, hollow pillar nearly as high as Bunker Hill Monument in Boston. It has been well said that "It looks like some fairy tower, composed of tier upon tier of marble columns and delicate tracery, and leans gently forward as though weary of the burden of its own beauty."

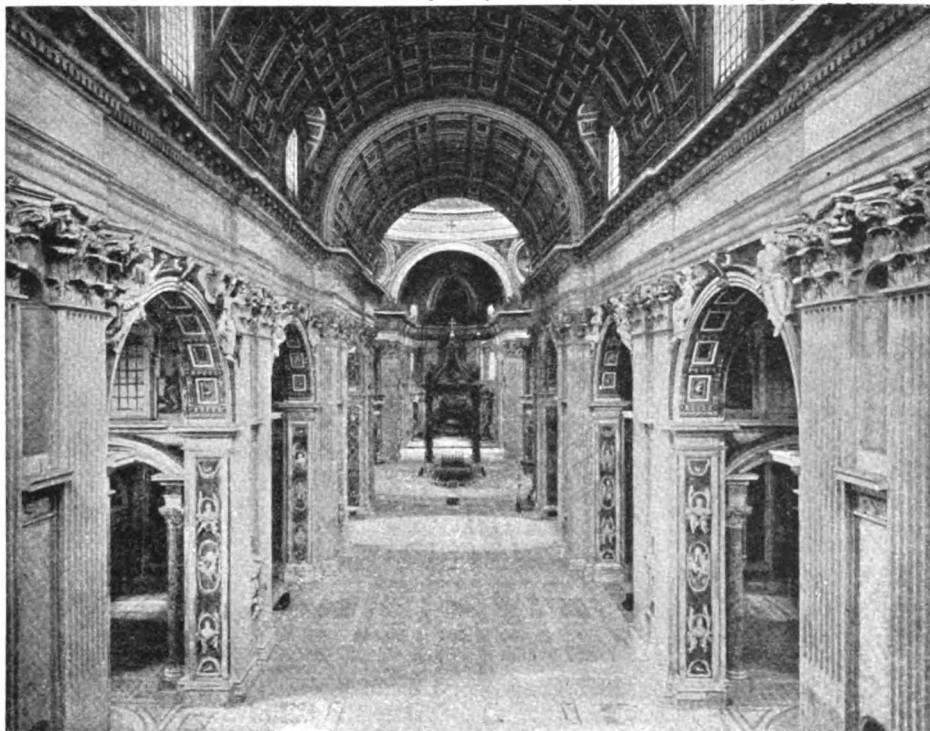
But "all roads lead to Rome," and from all Christendom thousands of pilgrims have made their toilsome way to visit the spots believed to be hallowed by the presence of the Apostles St. Peter and St. Paul. The greatest Christian church in the world stands on what is said to be the site of St. Peter's tomb. Over 150 years were spent in the building, and two of the most famous artists ever known—Raphael and



## THE LARGEST CHURCH IN THE WORLD



St. Peter's Cathedral at Rome is so large that most cathedrals could be placed inside it, and there would still be a great deal of room. The foundation stone was laid in 1506, but the building was not finished until 1667, and among the many architects were such famous artists as Raphael and Michael Angelo. As a specimen of architecture, however, St. Peter's has been spoilt by so many different men mixing up different ideas.



Inside, St. Peter's is very beautiful to the eye, as seen in this photograph. It is filled with paintings and sculptures by the greatest artists, and the immense dome is decorated in rich mosaic. The walls, too, present the appearance of being faced with different coloured marbles; but this is only a pretence, for these walls are really covered with plaster painted to look like marble. A splendid altar of brass stands beneath the dome.

Michael Angelo—helped with their designs. A mighty flood of light pours down on the marble floor of the immense building, showing up the fine statues, tombs, and pictures for which it is so famous. The foundation of this St. Peter's of to-day was laid when Henry VIII., whose action parted England from Rome, was a young man, early in the sixteenth century. It took the place of the church which had lasted 1,000 years, and had seen the coronation of Charlemagne and many stately ceremonies of the earlier popes, all through the years when so many English bishops had to journey to Rome to receive the tokens of their office.

The Vatican Palace close by has been used by the popes since the days when the Papal Court returned from Avignon, where it was kept in exile for seventy years. This was at the end of the fourteenth century. The palace now contains about 1,000 halls, chapels, and rooms, and the greater part of it is used to house the splendid collections of books and works of art that have been gathered together by the popes.

#### **THE RUIN WROUGHT BY THE POPES, & THE PILLAGE OF ROME BY FOREIGN TROOPS**

They were troublous times for Rome while the popes were away at Avignon, in France; great families, as in other cities, struggled for power; there was constant fighting in the streets, and at last the people were stirred up by Rienzi to try to restore ancient liberties. But he was slain in a tumult. Even worse days were in store when Francis I. and Charles V. were fighting all over Italy. The extravagance and ambitions of some of the popes had almost ruined their states, and at last the army acting for Charles V. arrived before Rome and stormed it. The pope escaped from the Vatican to the strong fortress of St. Angelo, one of the splendid remains of the old Roman Empire, and for seven months the soldiers worked their wicked will in the old capital of the world. Pictures and statues beyond price were destroyed, books burned, and the inhabitants treated with the greatest cruelty. This barbarism, however, aroused Francis I. and Henry VIII., and they made Charles withdraw the soldiers.

Three years later, however, Charles, who had made peace with the pope, was crowned by him at Bologna.

Another despoiling of Rome took place when Napoleon Bonaparte, a man of Italian blood and name, pursued his career of conquests down the long peninsula. He made the pope give up part of his land and pay tribute, and send to Paris some of the most precious treasures of the Vatican. Throughout Italy Napoleon turned states and rulers about as he chose, forming republics, and duchies, and kingdoms in turn. At this time the bronze horses of St. Mark's, Venice, made a long journey to Paris, and when the pope dared to complain of his treatment, Napoleon carried him off also, a prisoner to Paris.

#### **THE KINGDOM OF NAPLES AND SICILY, AND THE TERROR SPREAD BY BRIGANDS**

Napoleon did not stop at Rome. Naples, the most beautifully situated city in Italy, and capital of the southern lands, had its full share of changes and French rulers. Perhaps of all the divisions of Italy, the changes in the south through the centuries have been the greatest and most bewildering. When the line of Norman kings ended, the German emperors had full sway for a time. Then princes of the House of Anjou were followed by Spanish rulers, then Naples fell to the Austrian Hapsburgs, and then again to another French family. Many and grievous were the wars and revolts, oppressions and hardships, so that the kingdom of Naples and Sicily had no chance of making progress like the rest of Italy, and the people were kept very poor and ignorant, and in many parts, especially in Sicily, wild and fierce brigands roamed about, making life unbearable in this most lovely part of the world, where the blue, shining sea ripples and washes round the shores of lovely rocky bays.

#### **THE ISLAND THAT GAVE MODERN ITALY ITS FIRST KING**

The island of Sardinia, lying in the middle of the western basin of the Mediterranean, was attacked in turn by Goths and Saracens, the Eastern emperors, and the popes. Later, it fell to the rulers of Savoy and Piedmont, and their united states were called the kingdom of Sardinia. This kingdom gave modern united Italy its first king.

After the fall of Napoleon, the Congress of Vienna set many of the Italian princes back in their states, and Austria was the chief gainer. So things went on

## ITALY'S GREAT STRUGGLE FOR UNITY



With their country split up into many badly governed states, the people of Italy longed to be a united nation. All agreed that the first step was to drive the Austrians out of Italy, and several unsuccessful attempts were made to do this; but in 1859 Sardinia, with the help of France, defeated the Austrians at Palestro, as shown here.



Four days after the battle of Palestro, the Austrians were again severely beaten at Magenta by the French, and the Emperor Napoleon III., with the King of Sardinia by his side, made a triumphal entry into Milan.



The success of Sardinia roused intense enthusiasm all over Italy, and the demand for unity became universal. The Austrians again suffered terrible defeat at Solferino, and Napoleon was acclaimed victor on the battlefield, as shown here. But he became jealous of Sardinia, made peace with Austria, and later fought to prevent the Italians taking Rome. It was not till 1870 that Italy really became one country, with Rome as its capital.

# EVERYDAY SCENES IN SUNNY ITALY



For centuries Carrara has been world-famed for its wonderful marble, tons of which are here awaiting despatch. Cattle drag the marble from the great quarries to the railway. The world's finest statues are of Carrara marble.



Sicily, the great island that lies at the toe of Italy, has had a famous history. But its people now are poor and uneducated. They have quaint customs, one of which is to decorate their carts with paintings, as shown here.



Macaroni, which is made largely at Naples, consists of flour and water. It is made by machinery, and while still wet is hung in the streets to dry, as seen here. In Naples the poor people, who live in vile districts, are called the lazzaroni, after Lazarus, the poor man in the Gospel. This is a typical scene in the district.

Two upper and two lower photographs copyrighted by Underwood & Underwood, N. Y.

## BEAUTIFUL NAPLES AND BUSY GENOA



No city is more picturesquely situated than Naples, standing as it does by the blue waters of the Mediterranean, with the threatening crater of Vesuvius frowning down upon it, and belching out clouds of smoke from time to time, as though warning the people of the fate of Pompeii, close by. But Naples is not only beautiful; it is a great centre of trade, an important naval and military station, and the largest city of modern Italy.



Viewed from the sea, Genoa seems to merit its name of "Genoa the Superb." But a closer view does not confirm the first impression, for the city is not really beautiful. Although it has some fine churches and palaces, the city is built awkwardly, and consists of narrow, irregular streets. It is, however, the greatest commercial seaport in Italy, and does a large trade. Genoa will always be famous as the birthplace of Christopher Columbus.



for a time much as before the turmoil and upheaval. But there was a difference.

The desire that all the different states of Italy should be formed into one free Italian nation, governed by an Italian king, was now beginning to grow in different parts of the country, especially in Piedmont, one of the Sardinian states. But all conspiracies and insurrections were kept down by Austria and the princes supported by that Power.

#### THE MAKERS OF MODERN ITALY AND THE PEOPLE'S STRUGGLE FOR FREEDOM

One of the early leaders of the people seeking for liberty was the patriot Mazzini, and one of the great things he accomplished was that he made his countrymen believe that the freedom and unity of Italy were possible. In the revolutionary year of 1848 most parts of Italy rose. Rome and Venice became commonwealths; Milan rose against Austria; but success was not yet. The Austrians and French put down freedom everywhere. More than ten years of hard effort were needed before the King of Sardinia could be called King of Italy; then, in 1866, when Austria was at war with Prussia, Austria had to give up Venetia—she had lost Lombardy some years before. The French kept troops in Rome until the troubled time of their war with Prussia, when they could no longer be spared.

Then Rome, too, was taken, and became at last the capital of Italy. Among the great names in this wonderful struggle for freedom, besides that of Mazzini, are those of Garibaldi, the brave and daring leader who raised troops and worked early and late to free his country; the king, Victor Emmanuel, who earned the title of "the honest king" because he steadily kept his word to all the parties; and his Minister, Cavour, whose wise counsels helped to settle all difficulties with the countries of Europe. The story of the freeing of Italy is one of the most thrilling that can be written.

#### VICTOR EMMANUEL IS DECLARED KING OVER A UNITED NATION

We read how the pope fled in disguise from Rome on the box of a carriage; how the citizens of Venice took shelter round St. Mark's against the Austrian cannons; how Louis Napoleon helped and hindered, and took Savoy and Nice for his pay; how Garibaldi freed Naples and Sicily from the tyrant who bom-

barded Messina and Palermo, and who caused his own people to be shot down in the streets. When King Victor Emmanuel entered Rome in state on July 2, 1871, he received an enthusiastic welcome; but the pope shut himself up in the Vatican quarter, and refused to acknowledge the kingdom of Italy. Ever since that time the pope has shut himself up and refused to leave his "prison," as he calls the palace now.

Italy has steadily made great progress since the union. There are now in it over thirty-three millions of people, who have an increasing share in the government; education is improving; also trade and industries, as roads have been developed, and railways and telegraphs connect the most distant parts with each other and Europe beyond. Many parts of the country have been drained, and so made both profitable and healthy. In the great cities there are new streets and squares, and a new sense of order, and quiet, and responsibility, only possible when a country is free.

#### THE RETURN OF PROSPERITY TO THE FAMOUS OLD CITIES OF ITALY

So now Milan, "The Grand," to-day is also the chief railway centre of the northern plain, and the wealthiest manufacturing town in Italy, chiefly making silk, woollen, and cotton goods.

Genoa, "The Superb," is now the Liverpool of Italy, with great docks, and shipping. Goods are sent thence *via* Turin by the Mont Cenis Tunnel, or through the St. Gothard *via* Milan.

Venice, "throned on her hundred isles," is also a busy port, with ship-building yards and manufactures.

Florence, "The Beautiful," has become an industrial centre, making silk and jewellery; and Leghorn, its port, trades in corn, wine, and olive oil.

Picturesque Naples, now the largest city in Italy, is a centre for trade, and also the chief naval and military station, for Italy has rapidly developed one of the finest navies in Europe, to protect not only her own long sea-coast, but her growing colonies on the east of Africa.

Rome itself, the "Eternal City," has more than doubled its population during the last thirty years, and a great modern town has grown up beside the ruins of the "grandeur that was Rome," and the wonders of the Middle Ages.

The next story of Countries is on 3149.

# The Child's Book of POETRY

## AN AMERICAN GIRL'S FAMOUS POEM

EVERY boy and girl is familiar with some lines of this poem. It describes, with great dramatic effect, how a young Englishwoman sought to save her sweetheart, by preventing the curfew bell from tolling, that being the signal for his death. The curfew, or evening bell, originated after the Norman Conquest, and was first intended as a warning to the Saxon peasantry to put lights out in their houses. "Curfew" comes from two French words, "couvre feu," meaning "cover the fire." This poem has so long been one of the most popular dramatic pieces in the English language, that it may be a surprise to many to know its writer is still alive, and likely, we hope, to live for many years. Her name is Rose Hartwick Thorpe, and she was born in the State of Indiana, July 18, 1850. She wrote the poem when little more than a schoolgirl, and it would not be wrong to describe it as a schoolgirl's masterpiece. It is usually known as "Curfew Must Not Ring To-night."

## THE CURFEW BELL

ENGLAND'S sun was slowly setting o'er  
the hill-tops far away,  
Filling all the land with beauty  
at the close of one sad day;  
And its last rays kissed the forehead of  
a man and maiden fair,  
He with steps so slow and weary, she  
with sunny floating hair;  
He with bowed head, sad and thought-  
ful; she, with lips all cold and white,  
Struggled to keep back the murmur:  
"Curfew must not ring to-night!"

"Sexton," Bessie's white lips faltered,  
pointing to the prison old,  
With its walls so tall and gloomy, moss-  
grown walls, dark, damp, and cold,  
"I've a lover in that prison, doomed this  
very night to die  
At the ringing of the curfew, and no earthly  
help is nigh.  
Cromwell will not come till sunset." And  
her lips grew strangely white  
As she spoke in husky whispers: "Curfew  
must not ring to-night!"

"Bessie," calmly spoke the sexton (every  
word pierced her young heart  
Like a gleaming death-winged arrow, like a  
deadly poisoned dart),  
"Long, long years I've rung the curfew  
from that gloomy shadowed tower;  
Every evening, just at sunset, it has tolled  
the twilight hour.  
I have done my duty ever, tried to do it  
just and right;  
Now I'm old, I will not miss it. Curfew  
bell must ring to-night!"

Wild her eyes and pale her features, stern  
and white her thoughtful brow;  
And within her heart's deep centre Bessie  
made a solemn vow.  
She had listened while the judges read,  
without a tear or sigh:  
"At the ringing of the curfew Basil Under-  
wood must die."  
And her breath came fast and faster, and  
her eyes grew large and bright;  
One low murmur, faintly spoken: "Curfew  
must not ring to-night!"

CONTINUED FROM 2922



She with quick step  
bounded forward,  
sprang within the old  
church door;  
Left the old man coming  
slowly, paths he'd trod so oft before.  
Not one moment paused the maiden,  
but, with cheek and brow aglow,  
Staggered up the gloomy tower, where  
the bell swung to and fro;

Then she climbed the slimy ladder, on which  
fell no ray of light,  
Upward still, her pale lips saying: "Curfew  
shall not ring to-night!"

She has reached the topmost ladder; o'er  
her hangs the great, dark bell;  
Awful is the gloom beneath her, like the  
pathway down to hell.

See! the ponderous tongue is swinging;  
'tis the hour of curfew now,  
And the sight has chilled her bosom, stopped  
her breath, and paled her brow.  
Shall she let it ring? No, never! Her eyes  
flash with sudden light,  
As she springs, and grasps it firmly: "Curfew  
shall not ring to-night!"

Out she swung—far out. The city seemed  
a speck of light below,  
There 'twixt heaven and earth suspended,  
as the bell swung to and fro.

And the sexton at the bell-rope, old and  
deaf, heard not the bell,  
Sadly thought that twilight curfew rang  
young Basil's funeral knell.  
Still the maiden, clinging firmly, quivering  
lip and fair face white,  
Stilled her frightened heart's wild beating:  
"Curfew shall not ring to-night!"

It was o'er; the bell ceased swaying; and the  
maiden stepped once more  
Firmly on the damp old ladder, where, for  
hundred years before,  
Human foot had not been planted but  
the brave deed she had done  
Should be told long ages after. As the rays  
of setting sun  
Light the sky with golden beauty, aged  
sires, with heads of white,  
Tell the children why the curfew did not  
ring that one sad night.

O'er the distant hills comes Cromwell. Bessie  
sees him ; and her brow  
Lately white with sickening horror, has no  
anxious traces now.  
At his feet she tells her story, shows her hands  
all bruised and torn ;  
And her sweet young face, still haggard with  
the anguish it had worn,  
Touched his heart with sudden pity, lit his  
eyes with misty light.  
"Go! Your lover lives!" cried Cromwell.  
"Curfew shall not ring to-night!"  
Wide they flung the massive portals, led the  
prisoner forth to die,  
All his bright young life before him. 'Neath  
the darkening English sky  
Bessie came, with flying footsteps, eyes  
aglow with love-light sweet ;  
Kneeling on the turf beside him, laid his  
pardon at his feet.  
In his brave, strong arms he clasped her,  
kissed the face upturned and white,  
Whispered : "Darling, you have saved me ;  
curfew will not ring to-night!"

### OH, LOOK AT THE MOON!

These simple child-like verses were written by an American lady, named Ediza Lee Follen, about seventy years ago. Mrs. Follen was born in 1787 and died in 1860; she wrote many similar old-fashioned pieces, chiefly for young people.

OH, look at the moon!  
She is shining up there ;  
Oh, mother, she looks  
Like a lamp in the air.  
Last week she was smaller,  
And shaped like a bow ;  
But now she's grown bigger,  
And round as an O.  
Pretty moon, pretty moon,  
How you shine on the door,  
And make it all bright  
On my nursery floor !  
You shine on my playthings,  
And show me their place,  
And I love to look up  
At your pretty bright face.  
And there is a star  
Close by you, and may be  
That small, twinkling star  
Is your little baby.

### MINE HOST OF THE "GOLDEN APPLE"

It is a very old custom for inns and public-houses to adopt some sign to distinguish them. The "Red Lion," the "Green Man," the "Bunch of Grapes," and such like are familiar. The "Golden Apple" has also been so used, but here a poet reminds us that the place where Nature's apples grow is better than that with the painted sign of the "Golden Apple." The verses are by Thomas Westwood.

A GOODLY host one day was mine,  
A Golden Apple his only sign,  
That hung from a long branch, ripe and fine.  
My host was the beautiful apple-tree ;  
He gave me shelter and nourished me  
With the best of fare, all fresh and free.  
And light-winged guests came not a few,  
To his leafy inn, and sipped the dew,  
And sang their best songs ere they flew.  
I slept at night on a downy bed  
Of moss, and my host benignly spread  
His own cool shadow over my head.

When I asked what reckoning there  
might be,  
He shook his broad boughs cheerily :  
A blessing be thine, green apple-tree !

### ROCK OF AGES

This beautiful hymn was written by Augustus Montague Toplady. It is found in many church hymnals, and has become familiar and dear to the hearts of many of us.

Rock of Ages, cleft for me,  
Let me hide myself in Thee.  
Let the water and the blood,  
From Thy riven side which flowed,  
Be of sin the double cure—  
Cleanse me from its guilt and power.

Nothing in my hand I bring—  
Simply to Thy cross I cling ;  
Naked come to Thee for dress—  
Helpless look to Thee for grace ;  
Foul, I to the Fountain fly—  
Wash me, Saviour, or I die.

While I draw this fleeting breath,  
When my eye-strings break in death,  
When I soar to worlds unknown,  
See Thee on Thy judgment-throne,  
Rock of Ages, cleft for me,  
Let me hide myself in Thee.

### A PRAYER

LORD, who art merciful as well as just,  
Incline thine ear to me, a child to dust.  
Not what I would, O Lord, I offer Thee,  
Alas ! but what I can.  
Father Almighty, who hast made me man,  
And bade me look to heaven, for Thou there,  
Accept my sacrifice and humble prayer.  
Four things which are not in Thy treasury  
I lay before Thee, Lord, with this petition :  
My nothingness, my wants,  
My sins, and my contrition.

ROBERT SOUTHEY.

### A CANADIAN BOAT SONG

On the great rivers of Canada there is romantic life and adventure of a kind never to be found on the rivers of England, which are much smaller and homelier waters. Hence boat songs are very popular in Canadian poetry ; but this fine song, which is rhythmic with the beat of the oars, was written by Thomas Moore, the famous Irish poet. If it is read to the time of rowing, it will be found to suggest the steady movement of the oars, just as Browning's famous poem on page 291 suggests the gallop of the horse.

FAINTLY as tolls the evening chime,  
Our voices keep tune and our oars keep  
time.  
Soon as the woods on the shore look dim,  
We'll sing at St. Anne's our parting hymn.  
Row, brothers, row, the stream runs fast,  
The Rapids are near and the daylight's past.  
Why should we yet our sail unfurl ?  
There is not a breath the blue wave to curl ;  
But when the wind blows off the shore,  
Oh, sweetly we'll rest our weary oar.  
Blow, breezes, blow, the stream runs fast,  
The Rapids are near and the daylight's past.  
Utawa's tide ! this trembling moon  
Shall see us float over thy surges soon.  
Saint of this green isle, hear our prayers,  
Oh, grant us cool heavens, and favouring  
airs !  
Blow, breezes, blow, the stream runs fast,  
The Rapids are near and the daylight's past.

## GERMAN FOLK-SONGS IN ENGLISH VERSE

**F**OLK-SONGS are simple songs made by the folk, or people, for the most part, long ago. Compared with the music of to-day, folk-songs are like wild flowers beside garden flowers. Every nation has its folk-songs ; on this page and the next appears a selection from the German, translated into English by Mr. Alfred Percival Graves, M.A., an English school inspector, also famous as an author and song-writer, his merry Irish song about "Father O'Flynn" being popular all the world over. The words of these German folk-songs are simple and clear, and the tunes are easy to remember, with a good lilt about them. They are taught to German children at school, and the children grow so fond of them that they remember them all through their lives, singing them in their homes in the evenings, or in the open air when holidaying, or even when on the march as soldiers. We used to sing such songs in America long ago, and we are beginning to sing them again at our schools and concerts.

### WERE I A BIRDIE TOO

**W**ERE I a birdie too, I'd fly away with you  
Far o'er the foam ;  
But since that cannot be, but since that  
cannot be,  
I'll stay at home.  
Still in the autumn light, valley and wood  
and height  
Joyfully glow,  
Free o'er the mountain-side still I can wander  
wide,  
While the winds blow.  
Then you, dear birdie, fly far, far across the  
sky ;  
I must bide here.  
But with the spring come back, but with the  
spring come back,  
Do, birdie, dear !

### THE SONG OF THE TWO HARES

**T**WIXT a hill and hollow, hollow pass,  
Two young hares were lying ;  
Nibbling at the juicy, juicy grass,  
Nibbling at the juicy, juicy grass,  
How the blades went flying !  
When they'd both their little paunches filled,  
Down they did squat them ;  
Then, as in sleep they both were stilled,  
Then, as in sleep they both were stilled,  
Came a churl and shot them !  
When they both had pulled themselves  
And at last concluded [together,  
That they still were sitting on the heather,  
That they still were sitting on the heather,  
Down the hill they scooted !

### THE DANCE OF THE FLOWERS

**T**HE lilies of the valley chime  
Their joy-bells sweet and low.  
Now, wild flowers, 'tis your dancing time !  
What makes you dally so ?  
Blue, yellow, white, they hurry up,  
They're flocking faster still !  
The daisy and the buttercup,  
Wood-violet, daffodil.  
Then O, while out of heaven the moon  
Looks down with joyful glance,  
The lilies ring and ring the tune,  
The blossoms dance and dance.  
Jack Frost he stamps his iron foot ;  
"How dare you dance and play ?"  
The lily-bells, alas ! are mute,  
The blossoms hide away.

But hardly has that churl of churls  
Forsook their favourite glen,  
When hark ! the lilies' peal of pearls  
Is wakening once again.

I hear myself its silver hum ;  
At home how can I stay ?  
O flowers, 'tis calling me to come  
And dance with you away !

### SON OF MY HEART

**S**LEEP, sonny darling, your mother's delight !  
Close your blue eyes up, there, close them  
up quite !  
Everything's quiet all over the house—  
Nothing is stirring but one nibbling mouse.  
Angels as lovely, my laddie, as you,  
Nodding and smiling, are watching us, too ;  
When you are older, perhaps they will fly,  
And wipe the big tear-drop from out of  
my eye.

Gilded by sunbeams now all your days go ;  
Later, ah, later it will not be so !  
Then, without number, Care's shadowy hand  
Will keep away slumber as by you they stand.  
Sleep, my heart's darling, the dark night is  
nigh,  
Sleep on in safety, for mother is by.  
Nay, never fear you, my own curly-pate,  
Mother is near you, both early and late.

### GOD ONLY KNOWS

**C**OULD you count the bright stars peeping  
Through the sky so soft and blue,  
Or the cloudlets gently creeping,  
Tell me, could you count them too ?  
Only God, who never slumbers,  
In His head could hold their numbers,  
For He made them every one.  
Could you count the midges dancing  
On the golden summer beam,  
Or the little fishes glancing  
Up and down the crystal stream ?  
God has called them into being.  
All their happy hours foreseeing—  
That is why they frolic so !  
Children, could you count the number  
Of the little curly heads,  
Starting out of rosy slumber  
From their happy little beds ?  
God the Father sees and knows them,  
All His loving kindness shows them—  
Knows and loves you every one !

### THE HOBBY-HORSE

**H**OP, hop, hop !  
 Without stay or stop ;  
 Over walls and fences flying,  
 Never jibbing, never shying.  
 Without stay or stop,  
 See my pony hop.  
 Tip, tip, toff !  
 Don't you shake me off !  
 Just you stop that mad curvetting,  
 Or the whip you'll soon be getting !  
 Do not shake me off !  
 Tipty, tipty, toff !  
 Ho, there, ho !  
 Woa, my pony, woa !  
 Ostler, ostler, Jinny, Joany,  
 Fetch the fodder for my pony !  
 Woa, my pony, woa !  
 Ho there, ho there, ho !  
 Whack, whack, whack !  
 How my whip I crack !  
 Wish that they would listen to me—  
 Yes, I think that that will do me.  
 How my whip I crack !  
 Whack, and whack, and whack !

Stay, now, stay !  
 Don't you run away !  
 For the journey still before you,  
 Hay and oats will quite restore you.  
 Don't you run away !  
 Stay, my pony, stay !

### THE FIR-TREE

**O** FIR-TREE fine, O fir-tree fine,  
 How faithfully you flourish !  
 Not only in the summer's glow,  
 But through the winter's scourging snow,  
 O fir-tree fine, O fir-tree fine,  
 How faithfully you flourish !  
 O fir-tree fine, O fir-tree fine,  
 What joy, what joy you've brought me !  
 When year by year your branches green,  
 My childhood's Christmas-trees have been,  
 O fir-tree fine, O fir-tree fine,  
 What joy, what joy you've brought me !  
 O fir-tree fine, O fir-tree fine,  
 From you I've learnt the lesson :  
 That hope and trust through trial keen,  
 Still keep our courage ever green.  
 O fir-tree fine, O fir-tree fine,  
 From you I've learnt that lesson !

## LADYBIRD, FLY

Words by ALFRED P. GRAVES.

Music by permission of MESSRS. SCHOTT & Co.

*Steady p*

La - dy - bird, fly, Your fa - ther's hang - ing  
 high, Your mo - ther's shut in Mos - cow town,  
 Mos - cow town is burn - ing down, La - dy - bird, fly !

# LITTLE VERSES FOR VERY LITTLE PEOPLE

**I**N marble walls as white as milk,  
Lined with a skin as soft as silk,  
Within a fountain crystal clear,  
A golden apple doth appear.  
No doors there are to this strong-  
hold,  
Yet things break in and steal  
the gold.



**L**ONG legs, crooked thighs,  
I little head, and no eyes.

**F**LOUR of England, fruit of Spain,  
Met together in a shower of rain  
Put in a bag tied round  
with a string,  
If you'll tell me this riddle,  
I'll give you a ring.



**I** HAVE a little sister, they call her  
Peep, Peep ;  
She wades the waters deep, deep, deep ;  
She climbs the mountains  
high, high, high ;  
Poor little creature she has  
but one eye.



**A**RTHUR O'BOWER had broken his band,  
He comes roaring up the land—  
The King of Scots, with all his power,  
Cannot turn Arthur of the Bower !



**B**LACK we are, but much admired ;  
Men seek for us till they are tired.  
We tire the horses, but comfort man ;  
Tell me this riddle if you can.



**A**s I was going o'er Westminster Bridge,  
I met with a Westminster scholar ;  
He pulled off his cap, an' drew off his  
glove,  
And wished me a very good-morrow.  
What is his name ?



**H**ICK-A-MORE, Hack-a-more,  
On the king's kitchen door ;  
All the king's horses,  
And all the king's men,  
Couldn't drive Hick-a-more, Hack-a-  
more,  
Off the king's kitchen door !



**T**HERE was a king met a king  
In a narrow lane ;  
Says this king to that king :  
" Where have you been ? "

" Oh, I've been a-hunting  
With my dog and my doe."  
" Pray lend him to me,  
That I may do so."

" There's the dog, take the dog."  
" What's the dog's name ? "  
" I've told you already."  
" Pray tell me again."



**A**s I went through a garden gap,  
Who should I meet but Dick  
Redcap !  
A stick in his hand, a stone in his throat,  
If you'll tell me this riddle, I'll give you  
a groat.

**O**LD Mother Twitchett had but one eye,  
And a long tail which she let fly ;  
And every time she went over a gap,  
She left a bit of her tail in a trap.



**T**HIRTY white horses upon a red hill,  
Now they tramp, now they champ,  
now they stand still.



**A**s soft as silk, as white as milk,  
As bitter as gall, a thick wall,  
And a green coat covers me all.





COCK ROBIN got up early  
 At the break of day,  
 And went to Jenny's window  
 To sing a roundelay  
 He sang Cock Robin's love  
 To the little Jenny Wren,  
 And when he got unto the end,  
 Then he began again.

SOME little mice sat in a barn to spin;  
 Pussy came by, and she popped her  
 head in.  
 "Shall I come in and cut off your  
 threads?"  
 "Oh, no, kind sir; you will snap off  
 our heads!"  
 "Oh, no, I'll not; I'll help you spin."  
 "That may be so; but you won't  
 come in."



QUEEN ANNE, Queen Anne, she sits in  
 the sun,  
 As fair as the lily, as white as the swan.  
 "I send you three letters, so pray you  
 read one."  
 You must read one, if you can't read all,  
 So pray Miss or Master throw up the  
 ball.

IN a cottage in Fife  
 Lived a man and his wife,  
 Who, believe me, were comical folk;  
 For, to people's surprise,  
 They both saw with their eyes,  
 And their tongues moved whenever  
 they spoke.

When they were asleep,  
 I'm told—that to keep  
 Their eyes open they could not contrive;  
 They both walked on their feet,  
 And 'twas thought what they eat  
 Helped, with drinking, to keep them alive.

PIE sat on a pear-tree,  
 A pie sat on a pear-tree,  
 A pie sat on a pear-tree,  
 Heigh O, heigh O, heigh O!  
 Once so merrily hopped she,  
 Twice so merrily hopped she,  
 Thrice so merrily hopped she,  
 Heigh O, heigh O, heigh O!

THERE was a man of Thessaly,  
 And he was wondrous wise,  
 He jump'd into a quickset hedge,  
 And scratched out both his eyes.

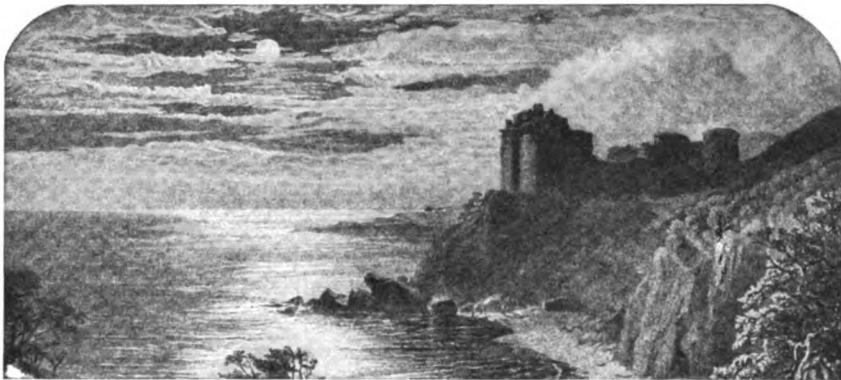
But when he saw his eyes were out,  
 With all his might and main  
 He jump'd into another hedge,  
 And scratched them back again.

"ROBERT BARNES, fellow fine,  
 Can you shoe this horse of mine?"  
 "Yes, good sir, that I can,  
 As well as any other man;  
 Here's a nail, and there's a prod,  
 And now, good sir, your horse is shod."

MY father he left me three acres of land,  
 Sing ivy, sing ivy;  
 My father he left me three acres of land,  
 Sing holly, go whistle, and ivy!

I ploughed it with a ram's horn,  
 Sing ivy, sing ivy;  
 And sowed it all over with one pepper-  
 corn,  
 Sing holly, go whistle, and ivy!

I harrowed it with a bramble bush,  
 Sing ivy, sing ivy;  
 And reaped it with my little penknife,  
 Sing holly, go whistle, and ivy!



## IS THERE A MAN IN THE MOON?

**T**HERE is certainly no life on the moon as we understand life. If the moon is inhabited at all it must necessarily be by a race of beings utterly different from anything we know on earth. For every living thing on our familiar earth is the creature of our local conditions. For instance, we breathe air, we are dependent on climate, and we are what we are in height and stature solely by reason of the density of the atmosphere. If the density of the air increased, we should become a squat people, unable to walk upright, and unable to lift a small weight; if the density of the air lightened, we could leap over hills and toss heavy weights above us.

Now, there is no atmosphere enveloping the moon, and so the race of possible beings inhabiting that lovely sphere must, to begin with, differ from us in the matter of breathing. They would be without noses and without lungs. And then think of their cities. A temple or a villa on the moon would last for ever. Air would not corrupt it, rain would not tarnish it, lightning would not rend it. Glass windows would not exist there, for without rain and wind who would think of glass windows? Such a

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thing as a kitchen, or even an ordinary fireplace, would not be found among them, for, as there is no air, no fire can be lighted, no match can be struck. And the people walking through the streets of this

eternal city would be a dumb race. They would never speak, because speech does not exist without air; they would make no noise with their feet and with their traction, for sound does not exist without air. If it were possible for all the largest cannon of our earth to be discharged from the moon at the same moment, they would make less noise than a pin falling upon velvet. The moon might be filled with lovely flowers, but they would give off no odour. Birds might sing from every branch, but no note would be heard. Men might cry to the heavens, but not a whisper would escape their lips.

A soundless, airless, waterless city; eternal and incorruptible, as silent as death, as vivid as life!

**WHAT ARE THE MARKS LIKE A FACE ON THE MOON?**

If we look at the moon through a pair of opera-glasses, or, still better, through a telescope, we do not see the "face" at all. It merely happens that the marks sometimes look very

like a face to the naked eye. The marks consist of mountains, mountain ranges, craters, and the sunken beds of what were once probably seas and oceans. The most prominent of these markings, and those which help most to give the appearance of a face, are made by volcano craters, and these are vastly different from any we know on the earth, because they are enormously larger. I suppose that all the volcanoes on the earth could easily be put together into the crater of one of the volcanoes on the moon. Some of these craters are scores of miles across.

If we have never looked at the moon with an opera-glass or a little telescope, we should do so. We lose the face, but we see far more, and it is not difficult even with a quite small glass to see exactly for ourselves what the markings that make the face are really due to. Often we can see the mountains best when the moon is not full, and then we see them standing out at the edge where the shadow and the light join. Some pictures of the moon and further facts about the wonderful mountain ranges and volcano craters on it are given on pages 2219 to 2225.

#### IS OUR EARTH A MOON TO OTHER WORLDS?

The general name for a moon is a satellite, or attendant. The earth itself has one satellite, which we call the moon; Saturn has nine; Jupiter has eight; and so on. A satellite is a body which revolves round some other heavenly body, which is usually called the satellite's *primary*. Our earth, then, and all the other planets, are satellites to the sun, and thus play the part of moons to the sun. But the sun is the only world to which the earth is a moon, for it is the only world around which the earth revolves. It may be that the sun revolves round some other great star, and so is a sort of moon to that star, in which case the whole of the sun's family, including the earth, would be "moons" to that star; but our leading astronomers now think that this is not the case.

#### WHY IS IT WARM IN SUMMER?

We might think at first that perhaps the earth is nearer to the sun in summer than in winter, and so the air is warmer and the sun's rays hotter. We know that the earth does not move in a circle round the sun, but in a sort of oval path

called an ellipse. But the fact is that, though the earth is nearer to the sun during part of the year than it is during the rest of the year, it is nearest in winter and farthest in summer, in the Northern Hemisphere. The difference in distance is so small that it does not affect the weather much; but no doubt if the earth were nearer the sun in summer and farther off in winter, summer would be a little hotter and winter a little colder than it is.

That our distance from the sun does not make the seasons is plain when we remember that in our winter it is summer in Australia. It is warm in summer because then the sun's rays strike the earth more directly; the sun rises higher in the sky, as we say, and that means the same thing. The air is like a great blanket; it keeps heat in and it keeps heat out. If the sun's rays strike straight downwards to the earth through the air, they do not have to travel through so much of it as if they travelled through the air slantwise.

#### WHY IS IT COLD IN WINTER?

In winter the sun's rays have to pass very slantwise through the air, and so lose a great deal of their power. The reason of the difference between summer and winter—indeed, the cause of all the seasons—is that the earth is tilted on its axis, the line running through it from the North Pole to the South Pole. The globes made to represent the earth which help us to learn geography are always tilted. Imagine the sun as a strong lamp on the floor, and the earth as a spinning-top on the floor, going round the sun. If the top is spinning upright, then at every part of its path round the lamp it will be in the same relation to the sun. But if the top spins tilted, as the earth does, then part of the time the upper half of it will be tilted towards the sun and the lower half away from the sun; and on the other side of its path the upper half will be tilted *away* from and the lower half tilted *towards* the sun. We in the United States live on the upper half of the great top called the earth, and in our summer this half is tilted towards the sun, and in our winter is tilted away from it. So our summer is the Australian winter, and the Australian winter is our summer. The tilt makes all the difference to the sun's rays as

## A GREAT STATUE OF A GREAT GENERAL



In another part of our book you may read of General William Tecumseh Sherman. This statue, modelled by Augustus St. Gaudens, our most famous American sculptor, was recently erected in his honour. It stands in the Plaza at one of the entrances to Central Park in New York City, and represents General Sherman as he appeared on the March to the Sea. The female figure represents Fame or Victory. This is considered to be one of the finest statues in the United States.

they pass through the atmosphere. It might have been that the earth was not tilted in its path round the sun, and then we should have had no seasons.

**WHY IS IT HOT AT THE EQUATOR?**

We know that the Equator is the name given to the great line that we imagine to run round the middle of the earth. Of course, there is no *real* line, except on the maps and globes. The belts, or zones, of the earth on both sides of the Equator are called the tropic zones, and are the hottest parts of the earth's surface. The reason is that, no matter whether it is summer or winter, farther north or farther south, in the temperate zones—in one of which England is—the tropic zones are always very directly exposed to the sun's rays, which strike through the air very straight down instead of slantwise. So the sun rises very high up into the "top" of the sky in the tropical regions, and so it is always very hot there. But it is too hot for human life at its best, and the greatest works of man have been done on one side or other of the tropical region.

**WHY CAN STILL WATER REFLECT THINGS FROM A DISTANCE?**

The distance from which the light comes has nothing whatever to do with what happens to it. Still water, like many other surfaces, is a very exact reflector of light. It throws the light-waves back from itself without mixing them up or distorting them. So long as it does this, we can see the image of whatever threw the light. It matters not in the least how far the light has travelled before it reached the water. You can see trees reflected in it, but you can see the moon or the sun reflected in it equally well, though they are scores of millions of miles away.

**WHERE DOES PUMICE-STONE COME FROM?**

We think of pumice-stone as merely something that rubs our skin so hard that it will take out ink-stains, but it has a wonderful history. The word is really the same as the Latin word *spuma*, which means foam, and we can see for ourselves that this stone is very light and spongy, so that it is almost like foam. It is spongy and full of spaces because it was formed under the influence of intense heat, and the spaces in it were filled with gas when it was made. Pumice-stone is really volcanic rock, formed deep in the earth and

thrown out upon the surface from the crater of a volcano. A particular value it has for our knowledge of the earth is that its composition tells us something of the deeper part of the earth's crust. Specimens of pumice-stone, and of the other volcanic rocks, are now being carefully examined to see how much radium they contain in them. When we know this, we shall get some idea of the quantity of radium in the earth's crust at depths about which we cannot yet learn in any other way. The great importance of this is that radium produces heat, and so we can learn how the earth is kept warm, and how much longer it is likely to remain warm, even apart from the sun's help.

**WHY CANNOT WE MAKE SOVEREIGNS?**

If we had the minting machinery, and if we had gold and the metals which are added to it to make it harder, we could make gold pieces; but we should not be allowed to do so. Even though they were the same in every way as the gold pieces made at the Mint, this would not do, for it is necessary to know how much money is in circulation; and if people could add as much as they pleased to it, this could not be known. Every gold piece added to the circulation of money slightly lowers the value of all the others. In any case, we should not do this, for it would not be worth while. We could get better value for our gold by selling it to the Government—that is to say, we could exchange it for gold pieces, and get more for it than we could make if we had to pay for the machinery and the work.

When men called counterfeiters make "gold pieces," they do not use gold, or, at any rate, they use only a little to gild the coins, so that they may look like gold pieces. If we get twenty real dollars or a real gold piece for a piece of gilded lead not worth a penny, it is theft, and that is why it is not allowed.

**WHAT ARE THE GROOVES ROUND THE EDGES OF MONEY FOR?**

Pennies and nickel pieces have smooth edges, but silver and gold coins are "milled," as it is called, round the edge. The reason is that people used to pare the edges of coins, especially gold coins, and then sell the precious metal. This is, of course, a form of theft from the nation's money, and the best way of stopping it was found to be to "mill"

the edges of the more valuable coins, so that no one could pare them without letting it be seen at once. Other coins are not milled because it would be worth no one's while to pare their edges.

**WHAT MAKES THE BRIGHT COLOURS WE SEE WHEN WE SHUT OUR EYES?**

The nerves of sight always produce sight, whatever excites them; that is usually light, but it may be many other things. Pressure is one of them, and that is why we "see stars" when we get a blow on the eye. When we shut our eyes very tightly we cause some pressure on the eyeball, and so there are sensations of light produced. Also, there are various things in the eye which get lit up by light, and reflect it for a short time even after the eye is shut. Then the curtain at the back of the eye sees these things. We often see things that are in our own eyes in this way. Also, the retina has a way of seeing things more or less faintly after the eyes are shut, and these images are called after-images. Sometimes they are bright, as the thing itself was, and sometimes they are seen as dark images corresponding to the bright thing we have been looking at. Lastly, we must remember that the eyelids allow a certain amount of light to pass through them, so that we still see a little even when we close our eyes in the presence of light. In people who are not well, the brain may give the sensation of light in closed eyes, apart from any light that really exists, and apart from after-images.

**WHAT ARE THE SPOTS THAT COME BEFORE THE EYES?**

Spots before the eyes are of two distinct kinds. The one kind is permanent. The spots are always there, and always in the same place. They are due to something that should not be in the eye—most commonly a speck of the *cornea*, or the front part of the eye, that is not transparent, having been damaged in some way. Such opaque spots in the cornea throw shadows on the retina and are so seen as spots before the eyes.

The second kind of spots is quite different. These are not permanent. They seem to be in different places at different times. Usually we do not notice them at all. They are the shadows thrown on the retina by white blood-cells moving through the

fluids inside the eye, and so getting in the way of the light. As these cells move about, of course, the shadows they throw are not seen always in the same place. White cells are always travelling about in the eye, more or less, but usually we do not notice them.

When we have been awake all night, or have got tired from staying up too late and getting too excited, then we get spots before our eyes, because our nerves have been made *too* sensitive, and so they notice the shadows of these cells, which a healthy eye does not notice. It is one of the most important facts about living matter, especially nerves, that when they are weak they get *too* sensitive or irritable; and this is called "the irritability of weakness."

**WHERE DOES ALL THE DUST GO TO?**

Dust is made of very different things, and its fate varies accordingly. Some dust is mainly made of particles of carbon, and these are gradually washed into the soil by the rain. We do not know whether they are useful there. Some of them get into our lungs and stay there. Then much dust is made of organic matter—substances derived from living creatures, such as horses, for example.

These street deposits of animals are a very important part of town dust. They find their way into the sewers, and so to the sea; or often to the soil, where, like all organic matter, they are extremely useful for the growth of vegetable life. This dust often gets into our eyes and throats, and probably helps to cause the colds that are so common in towns. Town dust will be really healthier when horses, dogs, and cats are kept under better control—if, indeed, they are allowed in towns at all. Also, a considerable part of the organic matter in dust is consumed and oxidised by the oxygen of the air, partly under the influence of the sun, and partly by the action of microbes.

**WHY IS THERE SHINGLE ON PARTS OF A COAST, AND SAND ON OTHERS?**

This depends on the earth's crust in various places. The shingle that we find on the south coast of England is made by the action of the sea on rocks made by fire, and therefore called *igneous* rocks, from the Latin word for a fire. Often near the layer that forms the shingle there is a layer of chalk, and that is also broken down by the sea-water. Chalk,



as we know, is a deep-sea deposit of the bodies of living creatures. On the east coast the history of the earth's crust has been different. There the exposed layers have been mostly formed by deposits of material at the bottom of the sea. This forms the very crumbly sort of rock called sandstone—a good example of the opposite class of rocks to those called igneous. The sandstone class of rocks is called *sedimentary*, because they were formed as a sediment, or deposit, under the water. Nevertheless, the same elements, silicon and oxygen, compose both sand and shingle.

**WHAT DO WE MEAN BY GREENWICH TIME ?**

It is plain that as the earth spins round, the sun must appear to rise in the east sooner, the further east we are, and later, the further west we are. So the apparent time, judged by the sun's rising and setting, is different in different places, according as they are east or west of each other; indeed, midday on one side of the earth is midnight on the other side. It is not a question of north or south, because the earth does not spin in the north-south line, but in the east-west line.

So it is necessary to have some agreed place from which to take our time, and the place on which many nations have agreed is Greenwich. They have their own time for their own purposes; but for general purposes, as, for instance, events occurring in the sky, they refer to Greenwich time—that is to say, the time reckoned by what the sun seems to do at Greenwich. The lines on maps up and down the earth's surface from north to south are called lines of longitude. They are narrower in the north and south than at the Equator, of course, and meet at the Poles—like the lines usually made by the knife when we cut a melon in the most usual way. Places on the same line of longitude as Greenwich have Greenwich time exactly, and no other place can have it.

**WHY DOES TIME GO ON AND NEVER STOP ?**

It is very difficult for us to understand at first, but there is really no such thing as time. All the wise men who have thought about it are entirely agreed as to this. What goes on and never stops is *change*. There is change around us, as in the movements of the earth, and the moon, and the sea, and

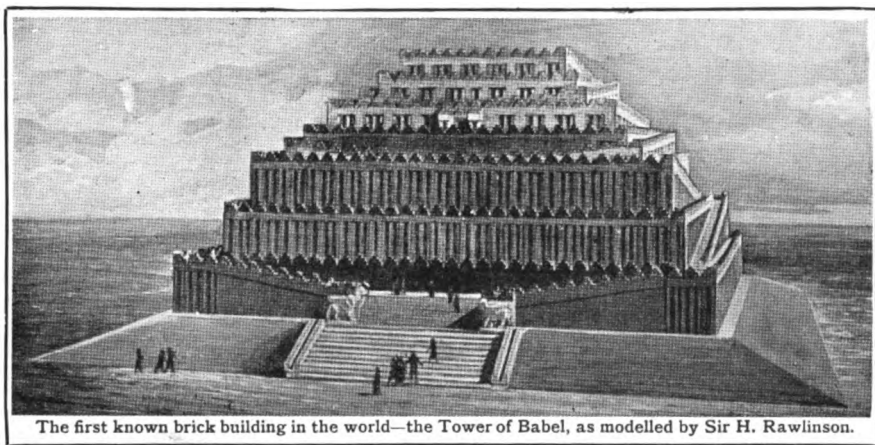
animals, and there is also change in ourselves, in our bodies and in our minds. It has been said that "nothing is constant but change." We get our idea of what we call time from our experience of this change in ourselves and in what is around us. This change never stops, and so we say that time never stops. We take something that changes regularly, such as the position of the earth as it moves round the sun, and we measure time by that; or we take the change of day and night. If everything that happens, within us and without us, were to happen a thousand times more slowly, we should not notice that things were happening more slowly; there would be nothing, within us or without us, to notice it by.

If change were to cease; if everything stayed where it is at this moment, say, four o'clock in the afternoon; if the shadows grew no longer, and night did not come; if we did not get hungry or thirsty; if our minds did not think of things, and if our limbs did not get tired, and if everything whatsoever, within and without, were to remain exactly as it is this instant—then there would be no time until change began again. We all think at first that that is not true, but the reason why we do think so is that we cannot help thinking of change as going on somewhere, and so of time as going on too.

**WHY IS A SNOWFLAKE LIGHTER THAN A RAINDROP ?**

A snowflake is made of ice-crystals—that is to say, of solid water. Now, it is a most important and peculiar fact about water that ice is lighter than liquid water, even though it is colder. The general rule, of course, is that things get heavier as they get cooler and lighter as they get hotter, as heat expands them and cold contracts them. But at just near its freezing-point water does not obey this rule; it *expands* as it gets cooler and freezes. That is why it bursts pipes in winter. So a snowflake is made of water in a lighter state than the water in a raindrop, and yet another reason why the snowflake is lighter is that there is a great deal of air in among the ice-crystals. This makes the whole thing lighter, just as the air in the holes of a sponge makes it lighter.

The next Questions are on page 3089.



The first known brick building in the world—the Tower of Babel, as modelled by Sir H. Rawlinson.

## THE STORY OF A BRICK

THE making of bricks seems to have been one of the earliest arts that the ancient people of the East mastered. The Israelites were not the first people to make bricks. These had been made in Egypt and Assyria and Babylonia long before the Jewish slaves were compelled to make bricks in Egypt. From a very early age the ancients used to make bricks of clay and chopped straw, which they placed in the sun to dry. Those, of course, were not the best bricks. A single winter's frost in this country would make them fall to pieces. But in those hot, dry lands there are bricks of this sort still in perfect condition, thousands of years after they were made.

But these people knew in very early times how to make better bricks, bricks which had been made hard and lasting by being burnt in kilns. The men who started to build the Tower of Babel used good bricks like these. Some of the bricks that the ancients used may be seen to-day in the British Museum in London. The Greeks and Romans probably learned from the East how to make bricks, and there are to be seen in Rome to-day some fine examples of the buildings of brick that they put up when Rome ruled the world. Naturally, when the Romans mastered Britain and made their homes

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there, they built their houses of bricks. Many remains of their work have been discovered in England, deep down in the soil, or under mounds of rubbish, which, in the course of a thousand years, has gradually covered them. So useful an art as brick-making might have been expected to survive the departure of the Romans; but it did not. The Danes, and Norsemen, and Saxons were a rough, uneducated people, and they lived there pretty much in the wild way that they had lived in their own lands.

Then came the Normans, who were among the finest builders in the world. But they did not make bricks. They built with stone. Not until the beginning of the fifteenth century did bricks appear again in England. Then they were not of British manufacture; they came from the north of Germany. It was Henry VI. who restarted the native manufacture of bricks, when he began to build Eton College, in 1452.

It was very important to England. Poor people's houses had all been of wood, and were often burnt down. They never had chimneys until bricks were made, and the houses were small, uncomfortable, and unhealthy. Bricks gave them a new and cheap building material that could be obtained in almost any part of the country.

# THE BEGINNING OF A BRICK



Few familiar things have changed less in the history of the world than the common brick of which we build our houses. Every day bricks are being made almost in the same way as they were made thousands of years ago, and in some parts of the world, bricks like those the Israelites made in Egypt, by letting the clay dry in the sun, are still in use. The first process is to dig the clay from the earth and load it up in trucks.

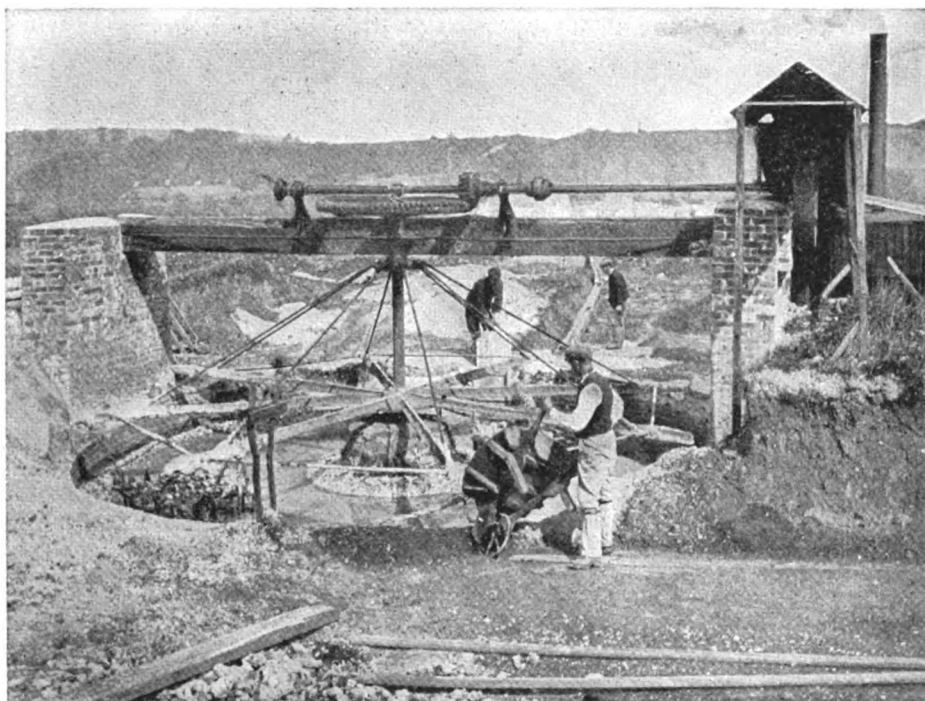


The brick-fields are usually quite close to the clay-pits, for if the clay had to be brought from any great distance in order to be manufactured into bricks, the cost of carrying it would make the bricks too dear for building purposes. Here we see the men wheeling the clay in trucks from the clay-pits to the brick-field.

## TWO WAYS OF STRENGTHENING THE CLAY

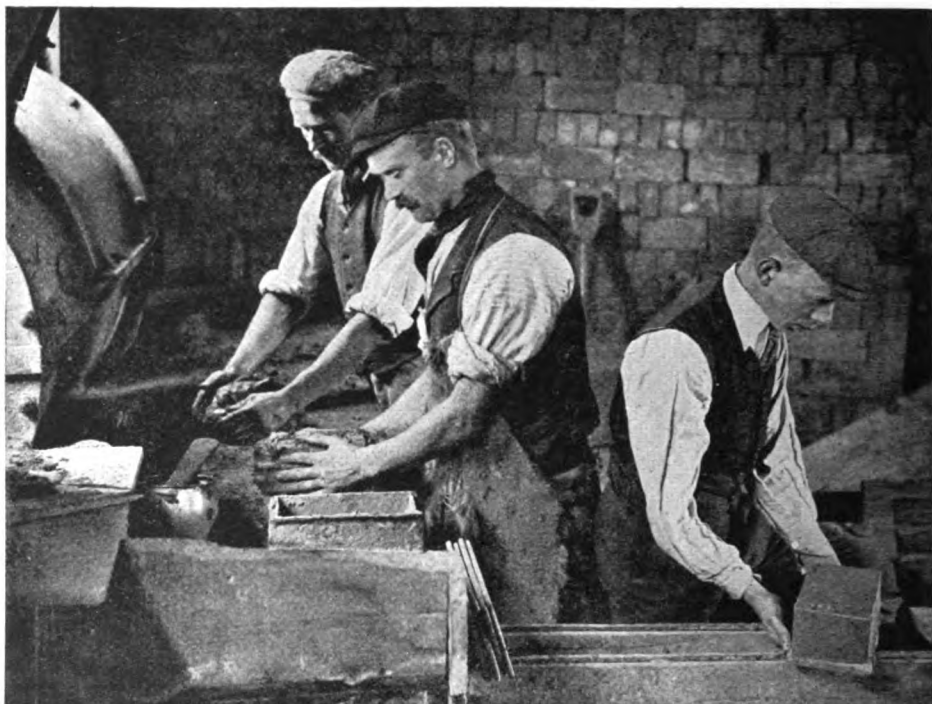


After the clay has been taken to the brick-yard, it may be mixed with other materials to strengthen it, and it has also to be well watered to make it soft and pliable for working into shape. This picture shows a common method of mixing by hand, but the picture below illustrates a quicker and better way of doing this by machinery.

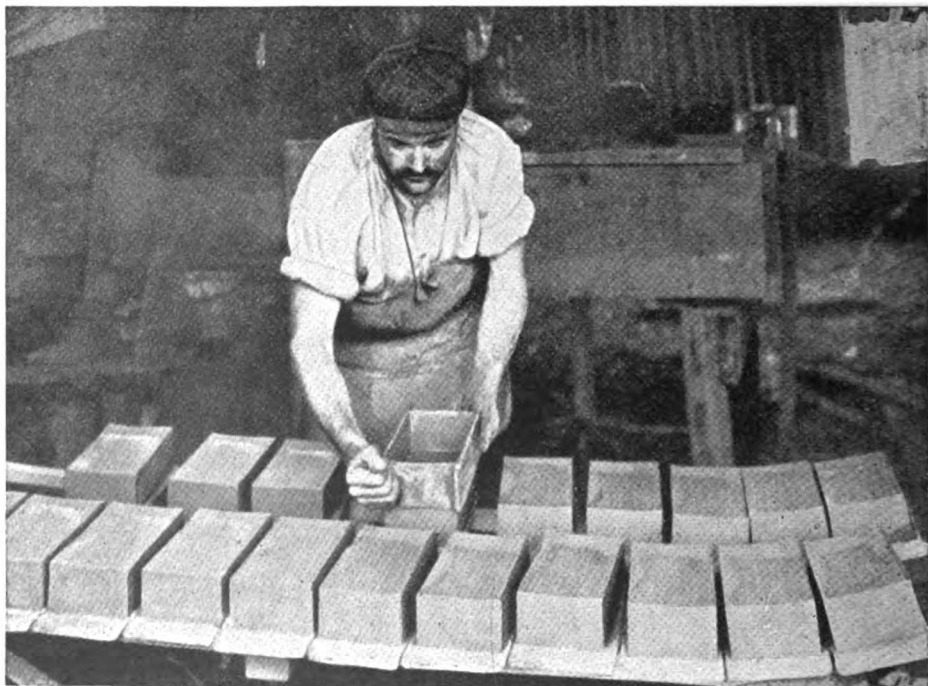


The mixing machine consists of a great wheel working in a pit, into which the clay and water are thrown. Then the arms of the wheel, which are like great spoons, move round, and in a very short time the machine mixes the clay up until it is about as soft as the dough used by the baker in making bread.

## MAKING THE CLAY INTO SHAPE



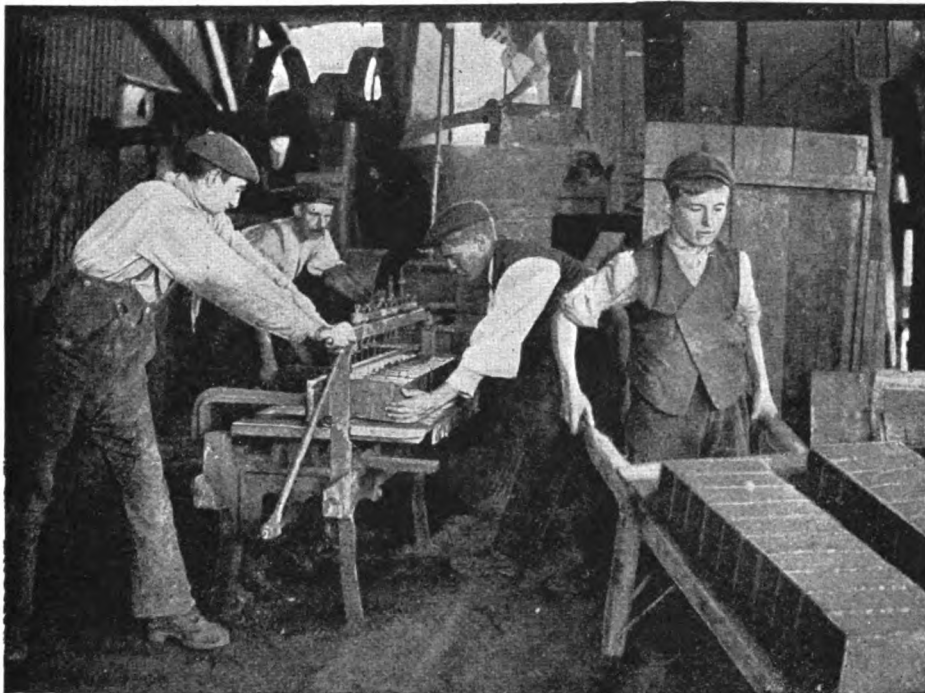
The clay, properly prepared for use, is taken to sheds, where workmen squeeze it into moulds that hold just enough to make the ordinary brick. One man kneads the clay to about the right size, and passes it on to another, who places it in the mould, while a third takes the filled moulds and lays them on a board for the next man.



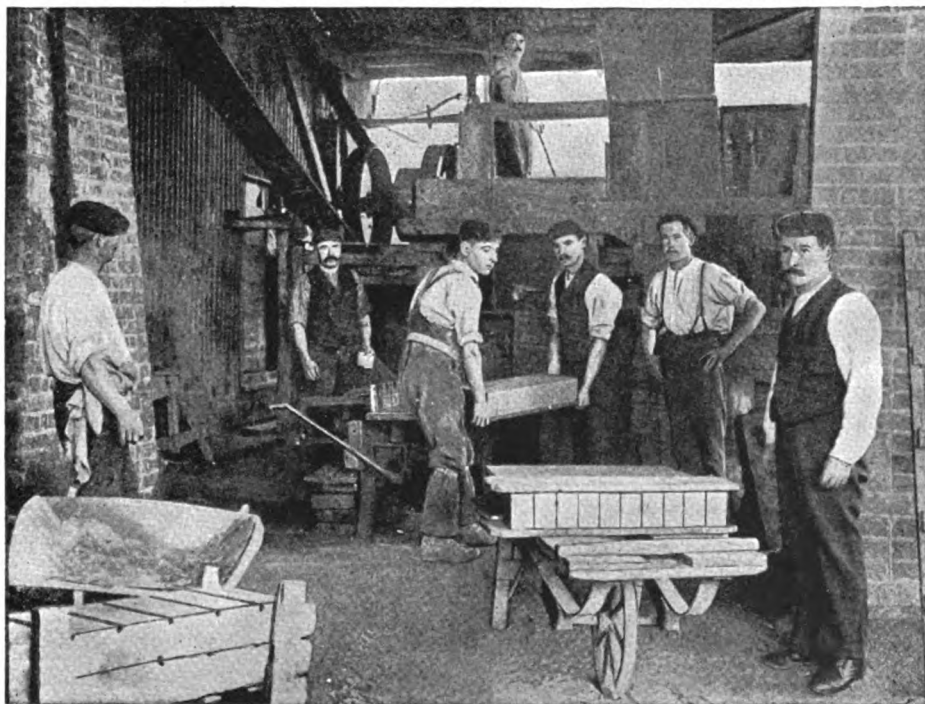
The next stage in the making of the brick is very simple. A workman removes the mould from each block of clay, and the unbaked bricks are then placed on little boards ready for the next process.



## SHAPING THE BRICKS BY MACHINERY



In some brick-yards machinery is used to mould the bricks into shape, and instead of the workmen making single bricks by filling up the small moulds one at a time, they put the clay into a large mould, and, placing it in the machine, are able to shape many bricks at one time. Other machines deliver them in a constant stream.



By using the shaping and moulding machine, a few men can do very many times as much work as a single workman working by the old-fashioned method, and so machine-made bricks are cheaper than the hand-made.



## BAKING BRICKS BY SUN AND FIRE



Boys are employed to take out the still soft cubes of clay, and to place them in sheds, where the sun and air will dry them for some time before they are ready to undergo the final process of being baked by fire.

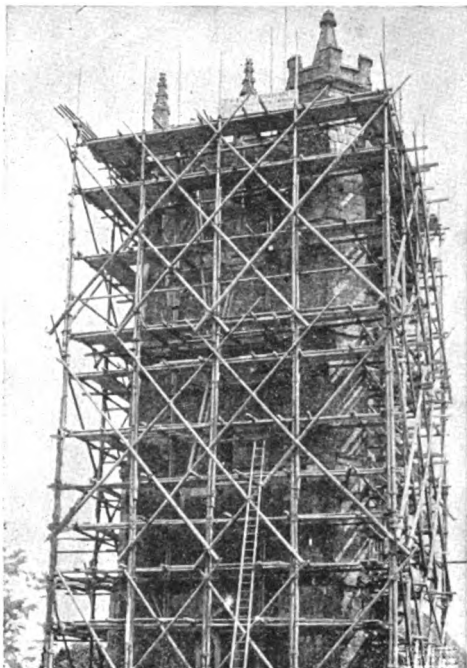


Here we see fifty thousand of the sun-dried bricks, already almost hard, being piled up into the shape of half a pyramid. In the centre of this a great fire is lighted, and kept burning vigorously until all the bricks have been baked as hard as stone, and as red as we see them when they come to be used for building our houses.

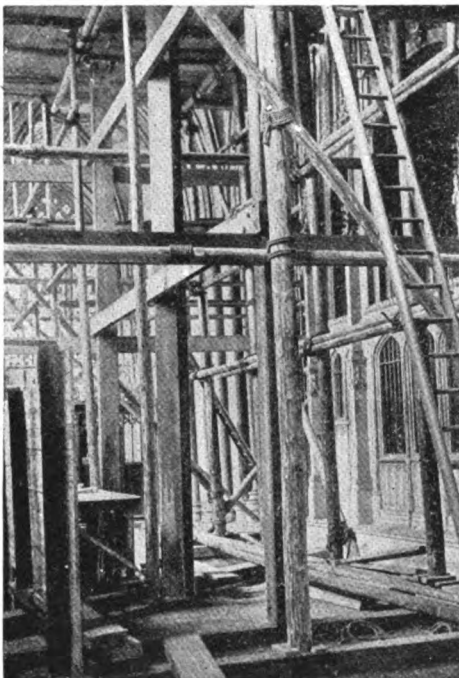
# HOW BUILDINGS ARE SAVED FROM RUIN



Buildings need careful mending. An ordinary builder cannot repair a church spire. Only steeplejacks, used to working at great heights, can do this work.



When a tower like this needs repair, a great scaffold has to be put up. Here all the cracks caused by years of frost are being carefully filled in with cement.

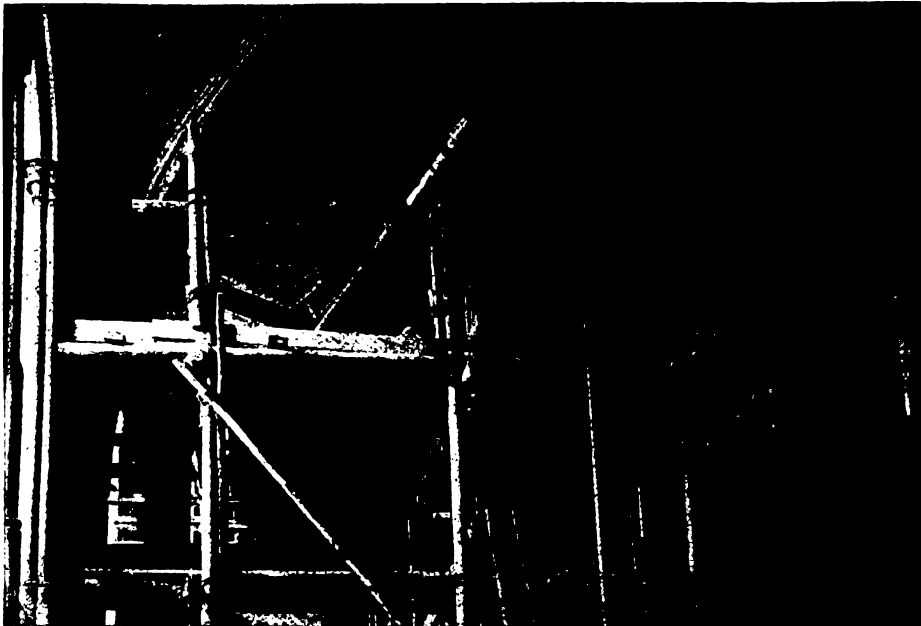


When it was discovered that the old foundations of Winchester Cathedral were beginning to crumble away, scaffolding had to be put up inside and outside to support the building while the repairs were being made.



To prevent the walls from falling outwards, a huge timber framework had to be built up outside the cathedral, and this cost \$5,000. Here we see some of the scaffolding, which weighed many hundreds of tons.

## A DIVER WORKING UNDER A CATHEDRAL

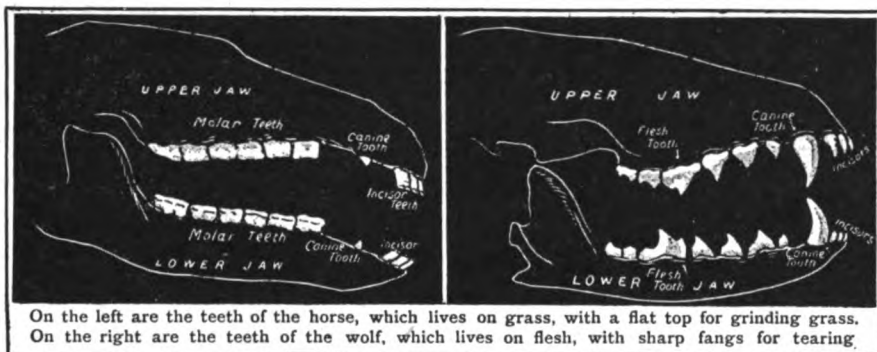


It is useless to have beauty and strength in the upper part of a building if the foundations are in a ruined and crumbling condition. This picture shows how the roof and arches of Winchester Cathedral were supported by a casement of wood, which exactly fitted and kept them in place while the foundations were repaired.



There is work for the diver on land as well as at sea. When the builders dug big holes by the side of the walls of Winchester Cathedral, water from underground springs poured in. An ordinary mason would have been drowned, or driven from his work; so divers had to be employed to fix the stones and cement which form the new foundations of the cathedral. Engines pump the water out of such holes as fast as they can, but when the flow is too heavy for the engines, the divers can work without fear.

THE NEXT FAMILIAR THINGS ARE ON PAGE 3097



## HOW AND WHEN TO EAT

**WE** have carefully studied the first and most important of human foods, which is milk. Without milk none of us could grow up to eat anything else, so its place as first of all foods is beyond question. And we have studied the great cereal foods and their value to the whole of mankind. But we know that men eat other food besides milk and bread; we all do so, civilised and savage, if we can get it, and we are better for it.

This is one of the supreme facts about mankind—a fact which helps to explain many of the most striking things in our history and our present lives. The idea is that man should and does make use not of one thing, or two, or three, of all that Nature produces, but of many or all of her products. We can do this because we have been made capable of suiting ourselves to all circumstances, and if we are deprived of one thing we can make another take its place. Now, when a chair, say, can be adapted to become a table, we call it adaptable.

So when a living creature, that usually lives in one climate and on one food, can live in another climate and on another food, we call it adaptable, and say that this is an instance of *adaptation*. All living creatures have some range of adaptation—as, for instance, to the change of temperature produced by night and day; but man is vastly more adaptable than

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any other living creature—animal or vegetable—and to this wonderful power he owes the fact that, while other creatures can live only in this, or that, part of the world, man can and does live anywhere, and in any circumstances. Now, this very largely means that he can eat a greater variety of foods, and live upon them more successfully, than can any other creature.

This does not mean that cabbages are as good a food as milk, or that there is no real difference between eating meat three times a day and eating no meat at all; but it does mean that when people ask us to believe that we ought to live on bread alone, or on any particular food alone, they are probably wrong.

When we examine the diet of a fish, or a tiger, or a bird, we find that it is very limited. When we visit some zoological gardens and ask questions of the keepers, we learn that all the animals there have their particular kind of diet, and will not thrive on any other. We find, too, that the lions and tigers will not eat buns, that the sea-lions will touch nothing but fish, and so on. But *we* eat buns, and sugar, and nuts, and fish, and meat, and many other things. Now, this has a meaning. It means that man has conquered the earth, largely because he can live, and even thrive, on almost everything that Nature

produces. Our organs of digestion, we know, are provided with the power of dealing with almost anything that could possibly be thought of as a food. If we study our teeth from this point of view we learn the same lesson.

**THE TEETH OF ALL CREATURES ARE SUITED TO THE FOODS THEY NEED**

When we look at the jaws of the horse, or the hippopotamus, or the lion, or the rabbit, we see special kinds of teeth, arranged in special ways, for a particular kind of food. It is this that makes the study of teeth so important, and especially is this so in the case of animal remains that teach us the past life of the earth, for the teeth teach us the habits of these creatures. Now, our own teeth have the great and striking character that they are suited for every kind of food. We all know the word *devour*, and the second half of it means *eat*. So we make up words like *carnivorous*, *herbivorous*, and *omnivorous*, which everyone should understand. *Carni* means flesh, *herbi* means herbs in general, like grass, and *omni*, of course, means all, like *omnibus*, which, as we read on page 4604 means "for all." Now, the teeth of most animals are adapted to either a carnivorous or herbivorous diet, or else to some other special diet, but the teeth of mankind are adapted to an omnivorous diet. So is the structure of our digestive organs. These two facts are enough in themselves to suggest that man is meant to live not by bread alone, but by every kind of good food; and the case is finally proved when we find that another natural fact about us, our appetite, points to the same thing. The sea-lion has no appetite for buns, or sugar, or nuts, or even red meat—only for fish; and the other animals have their special appetites.

**THE WONDERFUL WAY IN WHICH WE ADAPT OURSELVES TO ALL KINDS OF FOOD**

This puzzles the boy who expects all the animals to like all the things he likes. But the lesson is that not only his teeth and his digestive organs, but his appetite also, are omnivorous, whereas this is not the case with the other creatures. So, where the earth grows only rice, man lives and even thrives; but where it affords little but reindeer and blubber, as in the frozen North, man succeeds in living too, because of his power of adaptation.

Now, this great power shows itself in another way. Just as man can live on strange and limited diets if he has to do so, so he can live on them if he chooses to do so. In America we have the choice of eating practically every single thing that the whole earth produces. We grow, or the world sends food to us, fruit and flesh, cheese and rice, and everything else. But mankind is so adaptable that, if we choose, as some of us do, to live only on raw meat and hot water, or on nuts and cheese alone, or on milk only, or on bread and a few things like it, we can do so. At first, if we suddenly change our diet, we may suffer, but after a time we adapt ourselves to the new kind of food, and are all right again. Most of us agree that when people make up their minds to live entirely on some special food, it is a "fad"; it is man's amazing power of adaptation that makes this possible.

**THE GREAT IMPORTANCE OF VARIETY IN OUR FOOD**

But though the possibility of these fads is deeply interesting, and though the reason why they are possible is more interesting still, yet we have not disposed of the great argument provided by our teeth, our digestive organs, and our natural appetite, that it is best for most of us to live on a *mixed diet*. The conclusion reached by all the great students of this subject is that a mixed diet is best for man, and that the fullest lives and the best work are done, on the average, by those nations and those persons who live on a mixed diet. "Variety is the spice of life," and this applies to variety in food. Further, if we take only one kind of food it is possible that we are taking too much proteid—or too little—in proportion to the other elements, or too much or too little starch or fat, and so we throw a tax on our digestive organs. If we are careful with our appetites, and use them as we should, on a mixed diet it is more likely that we shall get a suitable proportion of the various food-elements.

But men and women and children are not all the same. All our faces and all our voices are different, and these differences suggest deeper differences still, which do exist. We are not all equally adaptable. Some of us like eggs, and thrive on a diet including many eggs; but there are people to

whom even a trace of egg in anything they have eaten is a real poison, and makes them seriously ill. We say, "As full as an egg is of meat," and it is true that an egg is simply crammed with fine food; but we also say truly that "One man's meat is another man's poison."

**WHY DIFFERENT KINDS OF PEOPLE NEED DIFFERENT KINDS OF FOOD**

So there are people who live best on a special diet, people who are happier and do better work—which means the same thing—when they take no meat, and others who are best when they take little else but meat.

Wise people find these things out for themselves. If they are very wise, they understand that what suits them does not necessarily suit other people. But though we waste a lot of time in foolish discussions about food, there are a great many questions about it which need wise discussion. Few things are more important for the life of man than the question of milk and the question of bread. Also, it is most important to remember that though the body can adapt itself to get what it needs out of a host of different foods, yet it has definite needs, as we have seen, which must be satisfied if it is to live at all.

We must have carbon in our food, but no power of adaptation, no degree of faith, no amount of practice, will enable us to use carbon in the form of diamonds or coal-dust, or to live on the nitrogen which is part of the stuff called laughing-gas. There is no system of diet which contains nothing but beef-tea or clear soup, because these are not foods, and nothing will make them foods. We ought to know these things; and we must also learn what are the foods that are cheap, what are the sham foods, that usually cost a lot of money but are not really foods at all, and what are the foods that it is risky to eat too much of, because they contain some poison—as meat, for instance, certainly does.

**THE APPETITE AS A NATURAL GUIDE TO FOOD**

First, however, we must understand once and for all that Nature has given us a guide, and that we are bound to take care of it. Animals think nothing about food, and yet they know everything they need to know. They have never heard of proteids, yet they are wise

enough to eat what is good for them, and just as much as is good for them, when they need it, and at no other time.

That is the ideal state of things which human beings are far enough from having reached. The secret of the animal is that it has a natural and healthy appetite, that guides it from day to day. If, however, the animal is a domestic one, that lives with human beings, and that, instead of finding its own living in a state of nature, has its food provided for it by us, then we find that it eats when it is not really in need of food, eats things that are not good for it, refuses things that are good for it, and eats more than is good for it of the things that are good for it, just exactly as though it were one of ourselves.

Our difficulty is that most of us—all of us, indeed, in some measure—have changed our appetites by our habits, just as we have changed the appetites of the animals we live with. So our appetites, like theirs, can no longer be trusted.

**HOW WE HAVE SPOILT OUR APPETITES BY OUR HABITS**

We have all sorts of wrong notions and wrong practices. Many grown-up people think that if a child wants sugar—which *they* do not happen to want—it is greedy, and must be punished. So, of course, when the child can get sugar, of which it has been starved, it eats too much, and makes itself ill, and then we blame it.

The beginning of the trouble was that we did not trust natural appetite, and so have damaged it. Then we cook our food, and, though there are good reasons for doing that, it probably means that instead of trusting to the natural flavour of the food—which is one of the things that appetite judges by—we put in all sorts of unnatural flavours—like mustard, and pepper, and vinegar, and artificial gravies—all of which have the effect of misleading the appetite, and persuading us to eat more than is good for us of good things, or to take things which the natural appetite would not care for at all.

So I am afraid we are quite right when we are inclined not to trust our appetites; but it is we that have made them untrustworthy. I believe that it is the duty of every sensible person to keep his own appetite as natural as possible, and to take great care of the appetites of children, so that they may remain as



worthy of trust as they are at first in all healthy babies and children who have been sensibly fed. Our feelings do not exist to mislead us, but to guide us. How dare we think our bodies so foolishly made that everything they tell us is deceitful? The reason why we suffer is not that we obey our feelings, but that we disobey them and cheat them.

#### **WE SHOULD EAT ONLY WHEN HUNGRY AND DRINK ONLY WHEN THIRSTY**

It is not eating when we are hungry that hurts, but tempting ourselves to eat when we are not really hungry, but merely greedy. It is not drinking when we are thirsty that hurts us, but going on drinking when we are no longer thirsty, just because the drink has a nice taste.

There are some more very important things to be said before we need study any particular foods. I am specially trying to put things in their place of right importance. Milk and the cereals are so tremendously important that they had to have special places for themselves, but after them there are no special foods nearly so important as are these general questions of appetite, and of how and when to eat.

First we must learn about cooking. So much of our food is cooked, and cooking takes up so much of our time, that we ought to know what the good of it is. One of our first reasons for cooking certain kinds of food, such as meat, is to change the look of it; we do not like it to look too red and raw. That, however, is not a particularly good reason, and, indeed, meat is not made easier to digest by being cooked. Another reason why we cook food is to soften it, and this especially applies to vegetable food. Another reason for cooking food, this time a good one, is that cooking kills the microbes in it. As regards the boiling, which is really the cooking, of milk, this is very important.

#### **HOW WE CHEAT OUR APPETITE AND EAT MORE THAN IS GOOD FOR US**

Then, also, we use cooking to cheat the appetite, and to persuade people to eat more than they really need, and that is the worst of the reasons why we cook our food. Now, the most important thing for us to know is whether cooking in general makes food better for us or worse, easier to digest or less easy. This all depends on the kind of food.

A cooked egg takes much longer to

digest than a raw one, and the harder it is boiled, the more difficult is it to digest. An uncooked potato, on the other hand, is all but useless to us, for the part of it which our bodies can digest is nearly all covered by tiny little coats of hard, almost woody material, which we cannot digest. Cooking bursts these coats, so that the starch inside can get out, and be used by us. When meat is cooked, the tough fibres that hold it together are loosened and softened, but the food part itself is hardened and made less digestible. If we wish to take meat in the most digestible way, we must take it raw and chop it up or else grate it. Over-cooked or twice-cooked meat is very indigestible; boiled meat is more digestible than roasted.

There is yet a great deal to learn about cooking, or, to speak more generally, about the preparation of food for eating. At present we think only of the appearance of the dish and its taste; we think almost nothing of the effects of what we do upon the digestion of the food; and we care nothing for waste.

#### **THE IMPORTANCE OF GOOD COOKING TO A NATION'S HEALTH AND HAPPINESS**

As we have seen, we are content to cook green vegetables and throw away the water, which contains all the valuable salts; and, as a rule, in cooking potatoes, we peel them and soak them, and so waste some of the most valuable of the food materials they contain. When we peel them we cut away the proteid layer just under the skin, and when we soak them a lot of useful matter goes into the water. Potatoes should either be steamed or boiled in their jackets, and the latter is vastly the better way.

So much depends upon good cooking, as regards the welfare of a nation, the health of its people, and their happiness in their homes, and so much harm is done by cooking which is either simply bad or else clever but turned to wrong uses, that the time must certainly come when this important science, and it is a science, will be taught to children of all classes. As long as the lives of men, women, and children depend upon food, the right preparation of food is a subject which is well worthy of anyone's serious study, and a queen is none the worse a queen if she can cook pastry that would not make her people ill.

The next part of this is on page 3109.

A HUMOROUS TALE OF IRISH LIFE

SAMUEL LOVER, like the author of "Charles O'Malley," was an Irishman, born in Dublin. They lived at the same time, Lover, who was born on February 24, 1797, being nine years older than Lever. Samuel Lover was first of all a painter, but he began writing poetry as well as painting pictures, and many charming songs he wrote, one of which we give on page 2808. Then he took to story-writing with equal success, "Legends and Stories of Ireland," published in 1831, "Rory O'More," in 1836, and "Handy Andy," in 1842, being his best-known works in prose. He was also an entertainer, and travelled through the United Kingdom and America entertaining people with his "Irish Evenings." He died July 6, 1868. "Handy Andy" is a very amusing tale, and tells us a great deal about Irish life in the early part of last century. For all its fun and nonsense, it is a wise book, and we cannot read it without profit.

THE MISHAPS OF HANDY ANDY

"ANDY ROONEY was a fellow who had the most singularly ingenious knack of doing everything the wrong way." He grew up in his humble Irish home full of mischief to the eyes of everyone save his admiring mother. But, to do him justice, he never meant harm in the course of his life, and he was most anxious to offer his services on every occasion to all who would accept them. Here is the account of how Andy first went into service.

"When Andy grew up to be what in country parlance is called 'a brave lump of a boy,' and his mother thought he was old enough to do something for himself, she took him one day along with her to the squire's, and waited outside the door, loitering up and down the yard behind the house, among a crowd of beggars and great lazy dogs that were thrusting their heads into every iron pot that stood outside the kitchen door, until chance might give her 'a sight of the squire afore he wint out, or afore he wint in'; and, after spending her entire day in this idle way, at last the squire made his appearance, and Judy presented her son, who kept scraping his foot, and pulling his forelock, that stuck out like a piece of ragged thatch from his forehead, making his obeisance to the squire, whilst his mother was sounding his praises for being the 'handiest craythur alive, and so willin'—nothin'

comes wrong to him.'"

"I suppose the English of all this is, you want me to take him?"

said the squire.

"Throth, an' your honour, that's just it—if your honour would be plazed."

"What can he do?"

"Anything, your honour."

"That means *nothing*, I suppose," said the squire.

"Oh, no, sir! Everything, I mane, that you would desire him to do."

To every one of these assurances on his mother's part Andy made a bow and a scrape.

"Can he take care of horses?"

"The best of care, sir," said the mother.

"Let him come, then, and help in the stables, and we'll see what we can do."

The next day found Andy duly installed in the office of stable-helper; and, as he was a good rider, he was soon made whipper-in to the hounds, and became a favourite with the squire, who was one of those rollicking "boys" of the old school, who let anyone that chance threw in his way bring him his boots, or his hot water for shaving, or his coat, whenever it was brushed. The squire, you see, scorned the attentions of a regular valet. But Andy knew a great deal more about horses than about the duties of a valet. One morning he came to his master's room with hot water and tapped at the door.

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"Who's that?" said the squire, who had just risen.

"It's me, sir."

"Oh, Andy! Come in."

"Here's the hot water, sir," said Andy, bearing an enormous tin can.

"Why, what brings that enormous tin can here? You might as well bring the stable-bucket."

"I beg your pardon, sir," said Andy, retreating. In two minutes more Andy came back, and, tapping at the door, put in his head cautiously.

**H**OW HANDY ANDY BROUGHT HIS MASTER'S HOT WATER IN THE MORNING

"The maids in the kitchen, your honour, say there's not so much hot water ready."

"Did I not see it a moment since in your hand?"

"Yes, sir; but that's not nigh the full o' the stable-bucket."

"Go along, you stupid thief, and get me some hot water directly."

"Will the can do, sir?"

"Ay, anything, so you make haste."

Off posted Andy, and back he came with the can.

"Where'll I put it, sir?"

"Throw this out," said the squire, handing Andy a jug containing some cold water, meaning the jug to be replenished with the hot.

Andy took the jug, and the window of the room being open, he very deliberately threw the jug out. The squire stared with wonder, and at last said:

"What did you do that for?"

"Sure, you *tould* me to throw it out, sir."

"Go out of this, you thick-headed villain," said the squire, throwing his boots at Andy's head; whereupon Andy retreated, and, like all stupid people, thought himself a very ill-used person.

**W**HAT HAPPENED WHEN ANDY OPENED A BOTTLE OF SODA AT THE DINNER

Andy was soon the laughing-stock of the household. When, for example, he first saw silver forks he declared that "he had never seen a silver spoon split that way before." When told to "cut the cord" of a soda-water bottle on one occasion when the squire was entertaining a number of guests at dinner, he "did as he was desired."

"He happened at that time to hold the bottle on the level with the candles

that shed light over the festive board from a large silver branch, and the moment he made the incision, bang went the bottle of soda, knocking out two of the lights with the projected cork, which struck the squire himself in the eye at the foot of the table; while the hostess, at the head, had a cold bath down her back. Andy, when he saw the soda-water jumping out of the bottle, held it from him at arm's length; every fize it made, exclaiming: 'Ow! Ow! Ow!' And at last, when the bottle was empty, he roared out: 'Oh, oh, it's all gone!'"

Great was the commotion. Few could resist laughter, except the ladies, who all looked at their gowns, not liking the mixture of satin and soda-water. The extinguished candles were re-lighted, the squire got his eyes open again, and the next time he perceived the butler sufficiently near to speak to him, he said, in a low and hurried tone of deep anger, while he knit his brow: "Send that fellow out of the room."

Suspended from indoor service, Andy was not long before he distinguished himself out of doors in such a way as to involve his master in a coil of trouble, and, incidentally, to retard the good fortune that came to himself in the end.

**T**HE SQUIRE SENDS ANDY TO THE POST-OFFICE FOR A LETTER

The squire said to him one day:

"Ride into the town and see if there's a letter for me."

"Yes, sir," said Andy.

"Do you know where to go?" inquired his master.

"To the town, sir," was the reply.

"But do you know where to go in the town?"

"No, sir."

"And why don't you ask, you stupid thief?"

"Sure, I'd find out, sir."

"Didn't I often tell you to ask what you're to do when you don't know?"

"Yes, sir."

"And why don't you?"

"I don't like to be troublesome, sir."

"Confound you!" said the squire, though he could not help laughing at Andy's excuse for remaining in ignorance.

"Well, go to the post-office. You know the post-office, I suppose?" continued his master in sarcastic tones.

"Yes, sir; where they sell gunpowder."

"You're right for once," said the squire—for his Majesty's postmaster was the person who had the privilege of dealing in the aforesaid combustible. "Go, then, to the post-office, and ask for a letter for me. Remember, not gunpowder, but a letter."

"Yes, sir," said Andy, who got astride of his hack, and trotted away to the post-office.

On arriving at the shop of the postmaster (for that person carried on a brisk trade in groceries, gimlets, broadcloth, and linen-drapery), Andy presented himself at the counter, and said:

"I want a letther, sir, if you plaze."

"Who do you want it for?" said the postmaster, in a tone which Andy considered an aggression upon the sacredness of private life. So Andy, in his ignorance and pride, thought the coolest contempt he could throw upon the prying impertinence of the postmaster was to repeat his question.

#### ANDY HAS A VERY FOOLISH QUARREL WITH THE POSTMASTER

"I want a letther, sir, if you plaze."

"And who do you want it for?" repeated the postmaster.

"What's that to you?" said Andy.

The postmaster, laughing at his simplicity, told him he could not tell what letter to give him unless he told him the direction.

"The directions I got was to get a letther here—that's the directions."

"Who gave you those directions?"

"The masther."

"And who's your master?"

"What consarn is that of yours?"

"Why, you stupid rascal, if you don't tell me his name, how can I give you a letter?"

"You could give it if you liked; but you're fond of axin' impident questions, becase you think I'm simple."

"Go along out o' this! Your master must be as great a goose as yourself, to send such a messenger."

"Bad luck to your impidence!" said Andy. "Is it Squire Egan you dare to say goose to?"

"Oh, Squire Egan's your master, then?"

"Yes. Have you anything to say agin it?"

"Only that I never saw you before."

"Faith, then, you'll never see me agin if I have my own consint."

"I won't give you any letter for the squire unless I know you're his servant. Is there anyone in the town knows you?"

"Plenty," said Andy. "It's not everyone is as ignorant as you."

#### WHY ANDY WOULD NOT PAY ELEVENPENCE FOR A LETTER

Just at this moment a person to whom Andy was known entered the house, who vouched to the postmaster that he might give Andy the squire's letter. "Have you one for me?"

"Yes, sir," said the postmaster, producing one. "Fourpence."

The gentleman paid the fourpence postage (the story, it must be remembered, belongs to the earlier half of the last century, before the days of the penny post), and left the shop with his letter.

"Here's a letter for the squire," said the postmaster. "You've to pay me elevenpence postage."

"What 'ud I pay elevenpence for?"

"For postage."

"Get out wid you! Didn't I see you give Mr. Durfy a letther for fourpence this minit, and a bigger letther than this? And now you want me to pay elevenpence for this scrap of a thing? Do you think I'm a fool?"

"No; but I'm sure of it," said the postmaster.

"Well, you're welkum, to be sure; but don't be delayin' me now. Here's fourpence for you, and gi' me the letther."

"Go along, you stupid thief!" (the word "thief" was often used in Ireland in the humorous way we sometimes use the word "rascal") said the postmaster, taking up the letter, and going to serve a customer with a mouse-trap.

#### WHY ANDY WENT BACK TO THE SQUIRE WITHOUT HIS LETTER

While this person and many others were served, Andy lounged up and down the shop, every now and then putting in his head in the middle of the customers and saying:

"Will you gi' me the letther?"

He waited for above half an hour, and at last left, when he found it impossible to get common justice for his master, which he thought he deserved as well as another man; for, under this impression, Andy, who was unrivalled for his stupid ty, determined to give

no more than the fourpence. The squire, in the meantime, was getting impatient for his return, and when Andy made his appearance, asked if there was a letter for him.

"There is, sir," said Andy.

"Then give it to me."

"I haven't it, sir."

"What do you mean?"

"He wouldn't give it to me, sir."

"Who wouldn't give it to you?"

**ANDY IS SENT BACK TO THE POST-OFFICE AGAIN BY HIS ANGRY MASTER**

"That owl chate beyant in the town—wanting to charge double for it."

"Maybe it's a double letter. Why didn't you pay what he asked, sir?"

"Arrah, sir, why would I let you be chated? It's not a double letther at all; not above half the size o' one Mr. Durfy got before my face for fourpence."

"You'll provoke me to break your neck some day, you vagabond! Ride back for your life, and pay whatever he asks, and get me the letter."

"Why, sir, I tell you he was sellin' them before my face for fourpence apiece."

"Go back, you scoundrel, or I'll horsewhip you; and if you're longer than an hour, I'll have you ducked in the horse-pond!"

Andy vanished, and made a second visit to the post-office. When he arrived two other persons were getting letters, and the postmaster was selecting the epistles for each from a large parcel that lay before him on the counter. At the same time many shop customers were waiting to be served.

"I've come for that letther," said Andy.

"I'll attend to you by-and-by."

"The masther's in a hurry."

"Let him wait till his hurry's over."

"He'll murther me if I'm not back soon."

"I'm glad to hear it."

**CALLED A "THIEF" IN JEST, ANDY DOES A LITTLE THIEVING IN EARNEST**

While the postmaster went on with such provoking answers to these appeals for despatch, Andy's eye caught the heap of letters which lay on the counter. So, while certain weighing of soap and tobacco was going forward, he contrived to become possessed of two letters from the heap, and, having effected that, waited patiently enough until it was

the great man's pleasure to give him the missive directed to his master.

Then did Andy bestride his hack, and, in triumph at his trick on the postmaster, rattled along the road homeward as fast as the beast could carry him. He came into the squire's presence, his face beaming with delight, and an air of self-satisfied superiority in his manner, quite unaccountable to his master, until he pulled forth his hand, which had been grubbing up his prizes from the bottom of his pocket, and, holding three letters over his head while he said: "Look at that!" he next slapped them down under his broad fist on the table before the squire, saying:

"Well, if he did make me pay elevenpence, I brought your honour the worth o' your money, anyhow."

Now, the letter addressed to the squire was from his law-agent, and concerned an approaching election in the county. His old friend, Mr. Gustavus O'Grady, the master of Neck-or-Nothing Hall, was, it appeared, working in the interest of the Honourable Sackville Scatterbrain, and against Squire Egan.

**THE TROUBLE THAT CAME OF ANDY'S FAMOUS VISITS TO THE POST-OFFICE**

This unexpected information threw him into a great rage, in the midst of which his eye caught sight of one of the letters Andy had taken from the post-office. This was addressed to Mr. O'Grady, and as it bore the Dublin postmark, Mr. Egan yielded to the temptation of making the letter gape at its extremities—this was before the days of the envelope—and so read its contents, which were highly uncomplimentary to the reader. As Mr. O'Grady was much in debt financially to Mr. Egan, the latter decided to put all the pressure of the law upon his one-time friend, and, to save trouble with the authorities, destroyed both of the stolen letters and pledged Andy to secrecy.

Neck-or-Nothing Hall was carefully guarded from intruders, and Mr. Egan's agent, Mr. Murphy, greatly doubted if it would be possible to serve its master with a writ. Our friend Andy, however, unconsciously solved the difficulty.

Being sent over to the law-agents for the writ, and at the same time bidden to call at the apothecary's for a prescription, he managed to mix up the two documents, leaving the

writ, without its accompanying letter, at the apothecary's, whence it was duly forwarded to Neck-or-Nothing Hall with certain medicines for Mr. O'Grady, who was then lying ill in bed. The law-agent's letter, in its turn, was brought to Squire Egan by Andy, together with a blister which was meant for Mr. O'Grady. Imagine the recipient's anger when he read the following missive and, on opening the package it was with, found a real and not a figurative blister :

"My dear Squire,—I send you the blister for O'Grady as you insist on it ; but I think you won't find it easy to serve him with it.—Your obedient and obliged,  
MURTOUGH MURPHY."

The result in his case was a hurried ride to the law-agent's and the administration to that devoted personage of a severe hiding. This was followed by a duel, in which, happily, neither combatant was hurt. Then, after the firing, satisfactory explanations were made. On Mr. O'Grady's part, there was an almost simultaneous descent upon the unsuspecting apothecary, and the administration to the man of drugs and blisters of a terrible drubbing. Next a duel was arranged between the two old friends. Andy again distinguished himself.

#### HOW ANDY WAS FINALLY DISCHARGED FROM THE SERVICE OF SQUIRE EGAN

When his employer's second was not looking, Andy thought he would do Squire Egan a good turn by inserting bullets in his pistols before they were loaded. The intention of Andy was to give Mr. Egan the advantage of double bullets, but the result was that, when the weapons were loaded, Andy's bullets lay between the powder and the touch-hole. Mr. O'Grady missed his aim twice, and Mr. Egan missed his fire. The cause being discovered, Andy was unmercifully chased and punished by the second, and ignominiously dismissed from Mr. Egan's service.

By an accident, Andy shortly afterwards was the means of driving a Mr. Furlong to Squire Egan's place instead of to Squire O'Grady's. Mr. Furlong was an agent from Dublin Castle, whose commission it was to aid the cause of the Honourable Mr. Scatterbrain. Of course, Andy, when he was told, on taking the place of the driver of the vehicle in which Mr. Furlong was

travelling, to drive this important personage to "the squire's," at once jumped to the conclusion that by "the squire's" was meant Mr. Egan's. Here, before the mistake was found out by the victim, Mr. Furlong was unburdened of much important information. While this process was going on at Mr. Egan's, a hue and cry was on foot at Mr. O'Grady's for the lost Mr. Furlong, and poor, blundering Andy was arrested and charged with murdering him.

#### ANOTHER OF ANDY'S BLUNDERS HAS A HAPPY RESULT FOR HIS OLD MASTER

He was soon set free and taken into Mr. O'Grady's service when Mr. Furlong had made his appearance before the owner of Neck-or-Nothing Hall. But a clever rascal named Larry Hogan divined by accident and the help of his native wit the secret of the stolen letters, and Andy was forced by terror to flee from Neck-or-Nothing Hall.

His subsequent adventures took him through the heat of the election, at which his ingenuity was displayed in unwittingly stopping up the mouth of the trumpet on which the Honourable Mr. Scatterbrain's supporters relied to drown Mr. Egan's speeches and those of his men. He thus did a good turn to his old master without knowing it, having merely imitated the action of the trumpeter, who had pretended to cork up the instrument before momentarily laying it aside.

When his fortunes seemed to be at their lowest ebb, Andy was discovered to be the rightful heir to the Scatterbrain title and estates, his claims to which were set forth in the second of the two letters stolen from the post-office, which had been destroyed by the squire without his reading it.

#### ANDY TURNS OUT TO BE OF GENTLE BIRTH AND COMES INTO HIS OWN

Soon afterwards, through his old master's influence, Andy was taken to London, and by dint of much effort remedied many of the defects of his early education. Then, marrying his cousin, Onoah, who had shared his mother's cabin in the old days, and to save whom from a desperado Andy had, this time knowingly, braved great personal danger, our hero settled down to the enjoyment of a life such as he had never dreamed of in his humble days.

The next stories of Famous Books are on 3265.



## THE COMPANY AT THE MAD TEA-PARTY



ALICE WITH THE MARCH HARE, THE MAD HATTER, AND THE SLEEPING DORMOUSE

There was a table set out under a tree, and the March Hare and the Hatter were having tea at it; a dormouse was sitting between them fast asleep, and the other two were using it as a cushion, resting their elbows on it, and talking over its head. "No room! No room!" they cried out when they saw Alice coming. "There's plenty of room!" said Alice indignantly. And she sat down in a large armchair at one end of the table.

## ALICE'S ADVENTURES IN WONDERLAND

HERE we follow Alice further in her many and strange adventures in Wonderland. It will be remembered that she had just escaped from the house of the White Rabbit, after having eaten the little cakes which made her so tiny that she could get through the very little door of the house. She then ran into a thick wood where she would be safe until she could decide what she would next attempt to do, for she was only three inches high now, and wished to grow a bit! What happened after this is told in the following pages.

## THE MAD TEA-PARTY

ONCE in the wood she was anxious to get back to her right size again, and then to get into that lovely garden. But how? Just then she saw an enormous puppy looking down at her from among the trees. She held up a stick for it to catch, and the next moment it was playing with great delight; but as Alice was so small and the puppy so large, she was in danger of getting hurt by it, so she escaped when it was out of breath. If she could only get something to eat or drink, she was sure something would happen to her. Peeping over a mushroom, she beheld a large blue caterpillar sitting on the top with its arms folded, quietly smoking a long hookah, and taking not the smallest notice of her or of anything else. At length, in a sleepy sort of way, it began talking to her, and she told it what she wanted so much—to grow to her right size again.

"I should like to be a *little* longer," she said. "Three inches is such a wretched height to be."

"It is a very good height indeed," said the Caterpillar angrily, rearing itself upright as it spoke (it was exactly three inches high).

"But I'm not used to it," pleaded poor Alice in a piteous tone. And she thought to herself: "I wish the creatures wouldn't be so easily offended."

"You'll get used to it in time," said the Caterpillar; and it put the hookah into its mouth and began smoking again.

This time Alice waited patiently until it chose to speak again. In a minute or two the Caterpillar took the hookah out of its mouth and

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yawned once or twice, and shook itself. Then it got down off the mushroom, and crawled away into the grass, merely remarking as it went: "One side will make you grow taller, and the other side will make you grow shorter."

"One side of *what*? The other side of *what*?" thought Alice to herself.

"Of the mushroom," said the Caterpillar, just as if she had asked it aloud; and in another moment it was out of sight.

Alice remained looking thoughtfully at the mushroom for a minute, trying to make out which were the two sides of it; and as it was perfectly round, she found this a very difficult question. However, at last she stretched her arms round it as far as they would go, and broke off a bit of the edge with each hand.

"And now which is which?" she said to herself, and nibbled a little of the right-hand bit to try the effect. The next moment she felt a violent blow underneath her chin; it had struck her foot!

She was a good deal frightened by this very sudden change, but she felt that there was no time to be lost, as she was shrinking rapidly; so she set to work at once to eat some of the other bit. Her chin was pressed so closely against her foot that there was hardly room to open her mouth; but she did it at last, and managed to swallow a morsel of the left-hand bit.

The next minute she had grown so tall that her neck rose like a stalk out of a sea of green leaves, and these green leaves were the trees of the wood. A pigeon attacked her, calling her a serpent, and no wonder, with

such a neck. But by nibbling bits of mushroom she at last succeeded in bringing herself down to her usual height. But, oh dear, in order to get into the first house she saw, she had to eat some more of the mushroom from her right hand and bring herself down to nine inches. Outside the house she saw the Fish-footmen and the Frog-footmen with invitations from the Queen to the Duchess, asking her to play croquet. The Duchess lived in the house, and a terrible noise was going on inside, and when the door was opened a plate came crashing out. But Alice got in at last, and found a strange state of things. The Duchess and her cook were quarrelling because there was too much pepper in the soup. The cook threw everything she could lay hands

on at the Duchess, and nearly knocked the baby's nose off with a saucepan.

The Duchess had the baby in her lap, and tossed it about ridiculously, finally throwing it in the most heartless way to Alice, and telling her she could nurse it if she liked. She took it out of doors, and, behold, it turned into a little pig, jumped out of her arms and ran away into the wood.

"If it had grown up," she said, "it would have made a dreadfully ugly child; but it makes rather a handsome pig, I think."

She was a little startled now by seeing the Cheshire Cat—which she had first seen in the house of the Duchess—sitting on a bough of a tree a few yards off. The Cat only grinned when it saw Alice. It looked good-natured, she

THE LAZY BLUE CATERPILLAR TELLING ALICE ABOUT THE MUSHROOM



In a minute or two the Caterpillar took the hookah out of its mouth and yawned once or twice, and shook itself. As it got down off the mushroom, it merely remarked: "One side will make you grow taller, and the other side will make you grow shorter." "One side of what? The other side of what?" thought Alice to herself. "Of the mushroom," said the Caterpillar, just as if she had asked it aloud. But how was she to tell one side from the other?

thought ; still, it had *very* long claws and a great many teeth, so she felt that it ought to be treated with respect.

"Cheshire Puss," she began rather timidly, as she did not at all know whether it would like the name ; however, it only grinned a little wider. "Come, it's pleased so far," thought Alice, and she went on : "Would you tell me, please, which way I ought to walk from here ?"

"That depends a good deal on where you want to get to," said the Cat.

"I don't much care where——" said Alice.

"Then it doesn't matter which way you walk," said the Cat.

"So long as I get *somewhere*" Alice added as an explanation.

"Oh, you're sure to do that," said the Cat, "if you only walk long enough!"

Alice felt that this could not be denied, so she tried another question.

"What sort of people live about here ?"

"In *that* direction," the Cat said, waving its right paw round, "lives a hatter ; and in *that* direction,"—waving the other paw—"lives a March hare. Visit either you like ; they're both mad."

"But I don't want to go among mad people," Alice remarked.

"Oh, you can't help that," said the Cat ; "we're all mad here ! I'm mad. You're mad."

"How do you know I'm mad ?" said Alice.

"You must be," said the Cat, "or you wouldn't have come here."

Alice didn't think that proved it at all ; however, she went on : "And how do you know that you're mad ?"

"To begin with," said the Cat, "a dog's not mad. You grant that ?"

"I suppose so," said Alice.

"Well, then," the Cat went on, "you see, a dog growls when it's angry, and wags its tail when it's pleased. Now, *I* growl when I'm pleased, and wag my tail when I'm angry. Therefore I'm mad."

"I call it purring, not growling," said Alice.

"Call it what you like," said the Cat. "Do you play croquet with the Queen to-day ?"

"I should like it very much," said Alice, "but I haven't been invited yet."



"Cheshire Puss," Alice began rather timidly, "would you tell me, please, which way I ought to walk from here ?" "That depends a good deal on where you want to get to," said the Cat, which was grinning strangely.

"You'll see me there," said the Cat, and vanished. . . . Alice waited a little, half expecting to see it again, but it did not appear, and after a minute or two she walked on in the direction in which the March Hare was said to live.

"I've seen hatters before," she said to herself ; "the March Hare will be much the most interesting, and perhaps as this is May it won't be raving mad—at least, not so mad as it was in March." As she said this, she looked up, and there was the Cat again, sitting on a branch of a tree.

"Did you say pig, or fig ?" said the Cat.

"I said pig," replied Alice ; "and I wish you wouldn't keep appearing and vanishing so suddenly ; you make one quite giddy."

"All right," said the Cat; and this time it vanished quite slowly, beginning with the end of the tail, and ending with the grin, which remained some time after the rest of it had gone.

"Well, I've often seen a cat without a grin," thought Alice; "but a grin without a cat! It's the most curious thing I ever saw in all my life."

She had not gone much farther before she came in sight of the house of the March Hare; she thought it must be the right house, because the chimneys were shaped like ears and the roof was thatched with fur. It was so large a house that she did not like to go nearer till she had nibbled some more of the left-hand bit of mushroom, and raised herself to about two feet high; even then she walked up towards it rather timidly, saying to herself: "Suppose it should be raving mad after all. I almost wish I'd gone to see the Hatter instead."

There was a table set out under a tree in front of the house, and the March Hare and the Hatter were having tea at it; a dormouse was sitting between them fast asleep, and the other two were using it as a cushion, resting their elbows on it, and talking over its head.

"Very uncomfortable for the Dormouse," thought Alice; "only, as it's asleep, I suppose it doesn't mind."

The table was a large one, but the three were all crowded together at one corner of it.

"No room! No room!" they cried out when they saw Alice coming.

"There's *plenty* of room!" said Alice indignantly. And she sat down in a large armchair at one end of the table.

"Have some wine," the March Hare said, in an encouraging tone.

Alice looked all round the table, but there was nothing on it but tea.

"I don't see any wine," she remarked.

"There isn't any," said the March Hare.

"Then it wasn't very civil of you to offer it," said Alice angrily.

"It wasn't very civil of you to sit down without being invited," said the March Hare.

"I didn't know it was *your* table," said Alice; "it's laid for a great many more than three."

"Your hair wants cutting," said the Hatter.

He had been looking at Alice for some time with great curiosity, and this was his first speech.

"You should learn not to make personal remarks," Alice said, with some severity; "it's very rude."

The Hatter opened his eyes very wide on hearing this, but all he *said* was:

"Why is a raven like a writing-desk?"

"Come, we shall have some fun now," thought Alice. "I'm glad they've begun asking riddles. I believe I can guess that," she added aloud.

"Do you mean that you think you can find out the answer to it?" said the March Hare.

"Exactly so," said Alice.

"Then you should say what you mean," the March Hare went on.

"I do," Alice hastily replied; "at least—at least, I mean what I say. That's the same thing, you know."

"Not the same thing a bit," said the Hatter. "Why, you might just as well say that 'I see what I eat' is the same thing as 'I eat what I see.'"

"You might just as well say," added the March Hare, "that 'I like what I get' is the same thing as 'I get what I like.'"

"You might just as well say," added the Dormouse, who seemed to be talking in his sleep, "that 'I breathe when I sleep' is the same thing as 'I sleep when I breathe.'"

"It is the same thing with you," said the Hatter; and here the conversation dropped, and the party sat silent for a minute, while Alice thought over all she could remember about ravens and writing-desks, which wasn't much.

The Hatter was the first to break the silence.

"What day of the month is it?" he said, turning to Alice.

He had taken his watch out of his pocket and was looking at it uneasily, shaking it every now and then, and holding it to his ear.

Alice considered a little, and said:

"The fourth."

"Two days wrong," sighed the Hatter. "I told you butter wouldn't suit the works," he added, looking angrily at the March Hare.

"It was the *best* butter," the March Hare meekly replied.

"Yes, but some crumbs must have got in as well," the Hatter grumbled. "You shouldn't have put it in with the bread-knife."

The March Hare took the watch and looked at it gloomily; then he dipped it into his cup of tea, and looked at it again, but he could think of nothing better to say than his first remark: "It was the *best* butter, you know."

Alice had been looking over his shoulder with some curiosity.

"What a funny watch!" she remarked. "It tells the day of the month, and doesn't tell what o'clock it is."

"Why should it?" muttered the Hatter. "Does your watch tell you what year it is?"

"Of course not," Alice replied very readily; "but that's because it stays the same year for such a long time together."

"Which is just the case with *mine*," said the Hatter.

Alice felt dreadfully puzzled. The Hatter's remark seemed to her to have no sort of meaning in it, and yet it was certainly English.

"I don't quite understand you," she said, as politely as she could.

"The Dormouse is asleep again," said the Hatter; and he poured a little hot tea on to its nose.

The Dormouse shook its head impatiently, and said, without opening its eyes:

"Of course, of course. Just what I was going to remark myself."

"Have you guessed the riddle yet?" the Hatter said.

"No, I give it up," Alice replied. "What's the answer?"

"I haven't the slightest idea," said the Hatter.

"Nor I," said the March Hare.

Alice sighed wearily.

"I think you might do something better with the time," she said, "than wasting it in asking riddles that have no answers."

"If you knew Time as well as I do," said the Hatter, "you wouldn't talk about wasting *it*. It's *him*."

"I don't know what you mean," said Alice.

"Of course you don't," the Hatter said, tossing his head contemptuously.

"I dare say you never even spoke to Time."

"Perhaps not," Alice cautiously replied; "but I know I have to beat time when I learn music."

"Ah, that accounts for it!" said the Hatter. "He won't stand beating. Now, if you only kept on good terms with him, he'd do almost anything you liked with the clock. For instance, suppose it were nine o'clock in the morning, just time to begin lessons: you'd only have to whisper a hint to Time, and round goes the clock in a twinkling. Half-past one, time for dinner!"

"I only wish it was," the March Hare said to himself in a whisper.

"That would be grand, certainly," said Alice thoughtfully; "but, then—I shouldn't be hungry for it, you know."

"Not at first, perhaps," said the Hatter; "but you could keep it to half-past one as long as you liked."

"Is that the way *you* manage?" Alice asked.

The Hatter shook his head mournfully. "Not I!" he replied. "We quarrelled last March—just before *he* went mad, you know" (pointing with his teaspoon at the March Hare). "It



The March Hare took the watch and looked at it gloomily; then he dipped it into his cup of tea, and looked at it again, but he could think of nothing better to say than his first remark: "It was the *best* butter, you know."



was at the great concert given by the Queen of Hearts, and I had to sing:

'Twinkle, twinkle, little bat!  
How I wonder what you're at!'

You know the song, perhaps?"

"I've heard something like it," said Alice.

"It goes on, you know," the Hatter continued, "in this way:

'Up above the world you fly,  
Like a tea tray in the sky.  
Twinkle, twinkle—'

Here the Dormouse shook itself, and began singing in its sleep: "*Twinkle, twinkle, twinkle, twinkle—*" and went on so long that they had to pinch it to make it stop.

"Well, I'd hardly finished the first verse," said the Hatter, "when the Queen bawled out, 'He's murdering the time! Off with his head!'"

"How dreadfully savage!" exclaimed Alice.

"And ever since that," the Hatter went on in a mournful tone, "he won't do a thing I ask. It's always six o'clock now."

A bright idea came into Alice's head. "Is that the reason so many tea-things are put out here?" she asked.

"Yes, that's it," said the Hatter with a sigh; "it's always tea-time, and we've no time to wash the things between whiles."

"Then you keep moving round, I suppose?" said Alice.

"Exactly so," said the Hatter; "as the things get used up."

"But when you come to the beginning again?" Alice ventured to ask.

"Suppose we change the subject," the March Hare interrupted, yawning. "I'm getting tired of this. I vote the young lady tells us a story."

"I'm afraid I don't know one," said Alice, rather alarmed at the proposal.

"Then the Dormouse shall!" they

both cried. "Wake up, Dormouse!" And they pinched it on both sides at once.

The Dormouse slowly opened its eyes. "I wasn't asleep," it said, in a hoarse, feeble voice. "I heard every word you fellows were saying."

"Tell us a story," said the March Hare.

"Yes, please do!" pleaded Alice.

"And be quick about it," added the Hatter, "or you'll be asleep again before it's done."

"Once upon a time there were three little sisters," the Dormouse began in a great hurry; "and their names were Elsie, Lacie, and Tillie; and they lived at the bottom of a well——"

"What did they live on?" said Alice, who always took a great interest in questions of eating and drinking.

"They lived on treacle," said the Dormouse, after thinking a minute or two.

"They couldn't have done that, you know," Alice gently remarked; "they'd have been ill."

"So they were," said the Dormouse; "very ill."

Alice tried a little to fancy to herself what such an extraordinary way of living would be like, but it puzzled her too much, so she went on: "But why did they live at the bottom of a well?"

"Take some more tea," the March Hare said to Alice very earnestly.

"I've had nothing yet," Alice replied in an offended tone, "so I can't take more."

"You mean you can't take less," said the Hatter. "It's very easy to take more than nothing."

"Nobody asked *your* opinion," said Alice.

"Who's making personal remarks now?" the Hatter asked triumphantly.

Alice did not quite know what to say to this, so she helped herself to some



The Mad Hatter singing "Twinkle, twinkle, little bat!"

## THE DORMOUSE FALLS ASLEEP TELLING ITS STORY



The Dormouse had closed its eyes while telling its very absurd story, and was going off into a doze; but, on being pinched by the Hatter, it woke up again, and continued its tale, though it never got to the end of it.

tea and bread and butter, and then turned to the Dormouse and repeated her question: "Why did they live at the bottom of a well?"

The Dormouse again took a minute or two to think about it, and then said: "It was a treacle-well."

"There's no such thing," Alice was beginning very angrily, but the Hatter and the March Hare went "Sh! sh!" and the Dormouse sulkily remarked: "If you can't be civil, you'd better finish the story for yourself."

"No, please go on," Alice said very humbly; "I won't interrupt you again. I dare say there may be *one*."

"One, indeed!" said the Dormouse indignantly. However, it consented to go on. "And so these three little sisters—they were learning to draw, you know—"

"What did they draw?" said Alice, quite forgetting her promise.

"Treacle," said the Dormouse, without considering at all this time.

"I want a clean cup," interrupted

the Hatter. "Let's all move one place on." He moved on as he spoke, and the Dormouse followed him; the March Hare moved into the Dormouse's place, and Alice rather unwillingly took the place of the March Hare.

The Hatter was the only one who got any advantage from the change, and Alice was a good deal worse off than before, as the March Hare had just upset the milk-jug into his plate. Alice did not wish to offend the Dormouse again, so she began very cautiously: "But I don't understand. Where did they draw the treacle from?"

"You can draw water out of a water-well," said the Hatter; "so I should think you could draw treacle out of a treacle-well—eh, stupid?"

"But they were *in* the well," Alice said to the Dormouse, not choosing to notice this last remark.

"Of course they were," said the Dormouse—"well in."

This answer so confused poor Alice

that she let the Dormouse go on for some time without interrupting it.

"They were learning to draw," the Dormouse went on, yawning and rubbing its eyes, for it was getting very sleepy; "and they drew all manner of things—everything that begins with an M——"

"Why with an M?" said Alice.

"Why not?" said the March Hare. Alice was silent.

The Dormouse had closed its eyes by this time, and was going off into a doze; but, on being pinched by the Hatter, it woke up again with a little shriek, and went on: "——that begins with an M, such as mouse-traps, and the moon, and memory, and muchness—you know you say things are 'much of a muchness'—did you ever see such a thing as a drawing of a muchness?"

"Really, now you ask me," said Alice, confused, "I don't think——"

"Then you shouldn't talk," said the Hatter.

This piece of rudeness was more than Alice could bear; she got up in disgust, and walked off. The Dormouse fell asleep instantly, and neither of the others took the least notice of her going, though she looked back once or twice, half hoping that they would call after her.

The last time she saw them, they were trying to put the Dormouse into the teapot.

"At any rate, I'll never go *there* again," said Alice, as she picked her way through the wood. "It's the stupidest tea-party I ever was at in all my life."

What happened after Alice got away from the Mad Tea-Party, and the other adventures that befell her before the end of her story, are told on page 3115.

## THE FABLES OF ÆSOP THE SLAVE

### THE OLD MAN AND HIS SONS

**A**N old man had three sons, who were always quarrelling with one another. The father often tried to reconcile them, and told them how foolish it was to quarrel; but his advice had no effect upon them.

So one day he called his three sons and gave them a bundle of firewood, telling them each to try if with all their might and strength they could break the bundle of sticks into two pieces. Each one tried without success, for the sticks were so closely and tightly bound together that no man's strength was sufficient to break them.

Then the father untied the bundle, and told his sons to break the sticks one by one, which they were able to do quite easily. Then he said to them:

"See, boys, how important it is to keep together. When you are united in the bonds of friendship, no one can hurt you; but if you quarrel and separate, people will be able to injure you."

*Union is strength.*

### THE CRAB AND HER MOTHER

**E**VERYONE who has been to the seaside, and has watched the little crabs in the rock pools, will have noticed that they generally walk sideways. It is said that once upon a time a mother crab scolded her daughter for walking side-

ways, pointing out that it looked very awkward, and was quite unlike the way the rest of the world walked.

"Indeed, mother," replied the young crab, "I walk as well as ever I can; but if you would like me to do it in a different way, I wish you would set me an example, and show me the proper way to walk, because I have always noticed that you walk sideways yourself."

*Example is better than precept.*

### THE TORTOISE AND THE EAGLE

**A**TORTOISE, who had grown tired of crawling about on the ground, and wanted to see the world, published a notice that if any bird would take him up into the air and show him the world, he would reward him by giving to him a number of precious stones which he knew were hidden in a certain place in the ground.

The eagle undertook to do as he wished, and carried the tortoise high up in the air to look round. Then he asked him to tell him where the precious stones were hidden, but the tortoise, who had never seen any precious stones, of course could not keep his promise, so the eagle dropped him, and he was dashed to pieces on the rocks far below.

*People who do not keep their promises are sure to suffer for it sooner or later.*

## THE NEW WOMAN

It is only during the last century that women have entered the professions or gone into business. Among our grandmothers it was an unheard-of thing for a woman of good family to earn her own living. If her husband died, or if she were a spinster with no money of her own, she was taken care of by the next of kin in the masculine line, or scraped together a scanty living doing embroidery or some other "ladylike tasks." It never even occurred to her that she could fit herself for work out of the home like her brothers, and enter public life or the professions or business and win her way on an equal footing with them. Such a suggestion would have been met with exclamations of horror as something truly impossible and unfeminine.

### CHANGING CONDITIONS

How different conditions are today! Girls go to college with their brothers, take their degrees and sally forth into the world to struggle for themselves, if not on quite an equal footing with men, yet every day more and more attaining that end. It is the age of "working women."

And yet such a state of affairs did not come about suddenly, nor is it wholly the result of women's discontent with domestic life. It is rather more the outgrowth of the times, — the natural evolution of womankind in the history of the race. The increased cost of living, and the higher standard required of young men entering the professional and business life, and the consequent necessity for prolonging the period devoted to preparation for that life, are heavy factors in the movement. That nine women out of ten would prefer marriage and the making of a home for themselves, to success in any profession, is just as much of a truth today as it was a hundred years ago.

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But the first ten years of a man's career are necessarily devoted merely to establishing himself in his business, and the average young man of today cannot afford to get married until he is nearing the thirties, and many can never marry.

### AN EXPANDING WORLD

In the meantime what has the girl been doing? Going to college, broadening her outlook, preparing also to enter a profession. Naturally quick and receptive, she is ready to earn her own living, as soon as her brother, perhaps earlier. She becomes absorbed in her work, and she too learns what it means to feel the joy of "winning out," of making herself and her personality felt in the world; and she experiences the sense of freedom that comes from handling her own money, for which she has to account to no one. Her outlook on life has been immeasurably enlarged; to her life is bigger, holds more possibilities than ever were dreamed of by her grandmother, who lived contentedly within the four walls of her home — seeing and knowing very little of anything beyond. Her world has grown so, is it any wonder that she should grow more particular in choosing the man for whom she would consider that "world well lost?"

The girl of the twentieth century has become strong and self-reliant, she has learned to form her own judgments of men and things, and to form them quickly; the "clinging vine" of the eighteenth century has developed into the straight-limbed young poplar of 1911. She has lost her dependence upon men in the transition, and sometimes it almost seems as if she has lost her femininity too. And yet this is not true! That a woman can take her place on an equal footing in the world

of men, and hew out for herself a living and a position, and yet remain truly feminine to her finger tips, has been proven by some of the foremost women of our age.

#### JANE ADDAMS, THE FOUNDER OF HULL HOUSE

Miss Jane Addams is a splendid example of a modern American woman who has been able to take her place in the world and accomplish much public good without losing a trace of her womanliness. Nay, rather has her sex been a factor in her success.

Miss Addams was born in Cedarville, Illinois, in 1860, with Quaker blood in her veins, and brought up with Quaker ideals of womanhood, which on the whole were broader than those of most of the other sects of our forefathers. She was reared in comfortable surroundings and was well educated, having, in addition to a course in Rockford College, two years of European travel. From the first she was possessed with a huge desire to do something for humanity — something to help and uplift mankind. With this purpose she started Hull House in Chicago, a place for earnest girls to go and help the poor. In a few years, Hull House developed into an institution of four buildings, including a reading room, an art gallery and studio, a coffee house, a men's club-room, a gymnasium with shower-baths, a kindergarten, a day nursery, a music school, a boy's club-room, a club-room for working girls, and rooms for social gatherings, and all this through the strong purposeful courage and cheery persistence of a woman.

"As a result of the ceaseless but not spectacular activity of Miss Addams and other women who deserve in some cases equal credit, the Juvenile Court of Cook County — 'the world's first and most typical juvenile court,' according to Graham Taylor — was established. Laws for factory inspection, for protection of immigrants, for abolition of child labor, for the building and management of tenement houses, for better management of charitable institutions, were secured."

The administration of the city's house-keeping, especially in the ward where

Hull House is situated, was improved by a woman's personal supervision. A few years ago Miss Addams was fighting earnestly to be made garbage inspector of Chicago. She secured the post, and rising at six each morning, this not very robust little lady would set out in all weathers with another "sweet girl graduate from college" as her companion to follow the garbage carts around from alley to alley and then to the city dumps in order to see that the work was properly done.

As a result of Miss Addams's campaign for cleanliness the whole community aroused itself to help in the struggle against city filth. "Every creature the settlement could muster," says Miss Forsyth in *The Delineator*, "did his share of the work. The children gave up marbles for paper-picking; the woman's club forgot its literary calendar and learned to sweep the street. The excitement it created, with the bonfires, the dust and laughter, stirred dirty old Chicago."

Miss Addams has gradually impressed upon America the value of her work. She was elected to the school board of Chicago, and served on it several years; she was made the president of the National Conference of Charities and Corrections, the first woman president of that body. Not only this, but Yale University, one of the most conservative of our colleges, has broken all its precedents to confer upon her the degree of Master of Arts.

And all this has been accomplished by a woman who throughout her life has retained her womanliness, nay, more than that, has used her very womanliness to win the people of Chicago over to an intelligent and radical reform. "Miss Addams is a thinker and a woman of action," says an admirer, "she counsels in every emergency with definiteness and decision. She is sensitively attuned to the manners and traditions of the most privileged class, yet she meets the poorest or the coarsest without a touch of the condescension that separates people more than pride. On the whole the reach of this woman's sympathy and understanding is beyond all comparisons wider in its span —

comprehending more kinds of people — than that of any living public man."

### MAUDE ADAMS

Very unlike the Chicago philanthropist, yet like her in this, that she has brought to herself success through the measure of her womanly charm, is Maude Adams, the most popular actress on our American stage.

Miss Adams's first appearance on the stage was at the age of nine months old in Salt Lake City, in a play called "The Lost Child." The business of the play required that a baby, sleeping peacefully, should be brought on the stage in a platter. The regular stage baby had an attack of stage-fright, and yelled and kicked until the stage manager was half crazy. Little Miss Maude, lying in her mother's dressing-room, placidly sucking her thumb, was suddenly seized by the frantic manager and borne on to the stage to take the place of the obstreperous infant aforesaid. For a moment, she blinked and winked in the glare of the footlights, and then she burst into a chuckling crowd of delight. A thunder of applause from the audience greeted her performance. And this was Miss Adams's début.

Her father died when she was little, and Miss Adams's girlhood was spent in San Francisco, where she went to school until she was fifteen years old. Then she went on the stage, joining as a member the company her mother belonged to in San Francisco.

"I couldn't have had a better school," she has said, in speaking of her experience. "The bill was changed every week, all the standard things were played, and I had an opportunity to hear all of them, even when I did not appear. I have realised the value of this early work during all my later experience."

From these early girlhood days to the centre of the New York stage was a long journey. Maude Adams accomplished it successfully. Many people say that her success has been largely due to her woman's intuition, "yet intuition and magnetism will hardly explain Miss Adams's invariable success in the many different characters that she has interpreted. She has

showed beyond shadow of doubt, that there is within her slim girlish frame the big sensitive soul of a woman and of an artist, a soul capable of understanding the great emotions and passions, and of rendering parts whose naïveté and pathos often touch us to tears."

Miss Adams has been most widely known by her impersonations of Juliet, of Rosalind and bewitching Babbie, "the Egyptian," in the "Little Minister." But perhaps, after all, the play which has won her a lasting place in the hearts of the little folks is "Peter Pan." As in this rôle Maude Adams is wholly bewitching; and has won the hearts of thousands of children in the United States. And no wonder, for as Peter Pan she is the very embodiment "of joy and innocence, of freshness of morning, and of the buoyant, creative, up-building energy of the springtime of life." In its early days there was much doubt as to how the public would take a play like Peter Pan, and astonishment, shading into regret, was expressed that Miss Adams should lend her name and talents to the presentation of so frail a part.

"But I want to play it," she said, "I want to play it because I love it."

And play it she did, — played it as "a little, joyous, woodland fellow, seeing nothing of the injustice of the world, knowing nothing of its ugliness and sin, — just a child's voice calling to the other children to come and play. And they came, — children of all ages, and all conditions, — poor, neglected children; rich, over-cultivated children; old, tired children; listened and laughed and were young. And they came, and came again until they knew the play by heart and the theatre was like a big family gathered round the nursery fire at story time. The playing of 'Peter Pan' by Maude Adams is not like an acted rôle. It is a living thought, embodied by a woman beautiful in life and thought, with the soul of an artist, and the heart of a child."

### ELLA FLAGG YOUNG

Another woman we might mention in speaking of those who have succeeded in their life's work is the first woman to



hold the place of superintendent of schools, Mrs. Ella Flagg Young. First a teacher, then a principal, then a trainer of teachers, she rose at last to the position of Superintendent of the Chicago public schools. "For years previous to Mrs. Young's appointment the differences over policies had so seriously divided the trustees and teachers, and had aroused so much personal antagonism that the work of the schools had suffered." Then came this clear-eyed, gentle-voiced woman to take the leadership into her hands. Quietly, without any fuss or uproar she brought order out of the chaos, and by one consent the members of the school board and the teachers alike fell into step under the leadership of a quiet, clear-brained, efficient woman.

### WOMEN IN BUSINESS

And so we might go on telling of women of our generation who have stepped into the world of men and succeeded, — artists like Cecilia Beaux and Ellen Emmett and Lydia Field Emmett, who have dared to carry their own original womanly personalities into their art; or a great opera singer like Lillian Nordica, whose beauty and wonderful voice have carried before her the public of Europe and America; or a trained nurse like Clara Barton, who so efficiently organised the work of the Red Cross Society.

There are others too of whom we should speak — business organisers and financiers of great ability — for it is not in philanthropy and the arts alone that women have taken their places in the ranks of men and not suffered by comparison.

There is Mrs. Clark Fisher, the only female member of the National Association of Manufacturers, who runs one of the largest iron factories in the country. During a severe illness of her husband, Mrs. Fisher took temporary charge of the factory of which he was the head; and when her husband died in 1902, Mrs. Fisher took the entire management of the factory into her own hands. Today, she is a recognised "captain of industry," and has obtained the contract for furnishing anvils and

vises for all the work on the Panama Canal.

Even more notable is the achievement of Mrs. Herrman, who conducts the industry of the H. Herrmann Lumber and Furniture Companies, — firms which employ 3,000 men, pay out \$2,000,000 yearly in wages and net Mrs. Herrman a profit of \$1,000,000 a year.

Another woman who created a business for herself of whom we have all heard is "Mary Elizabeth," whose dainty sweets many of us have tasted. "Mary Elizabeth" began her candy making on a very small scale, producing the confections herself in her own kitchen, and establishing "Help Yourself Booths" where customers took what they wanted and put the money in a drawer. From this humble beginning, "Mary Elizabeth" has worked up until she has a large and flourishing candy trade. She does not make her own sweets now, for her hands are filled with managing the executive end of the business.

### MARY BAKER GLOVER EDDY

Women have worked their way into many different fields of activity. They have become writers, surgeons, doctors, lawyers, ministers — yes — and one has become the founder of a new religion. Mrs. Mary Baker Eddy has established a new sect for us in Christian Science, a sect which has a following of over 85,000 people in the United States alone.

There is another woman in the West, young and pretty and low-voiced, who is the head of a large cattle ranch, who knows how to lasso and throw a steer with the best of the men ranchers. No one of her rough band of cowboys would use a profane word in her presence, yet so firmly does she hold the reins of authority in her slim hands that there is not one of them either who would dare to question the brisk, clear-headed commands of the young mistress of the ranch.

And so we might go on indefinitely mentioning women — hundreds of women — who have come forth to claim their right to compete with men on an equal footing — in that new comradeship which is taking the place of the old-time chivalry.



## WHAT TO DO IN CASE OF FIRE

FIRE is all right in its proper place, but altogether to be dreaded where it can burn people or destroy property. So those persons who know what to do and have the presence of mind to do it are invaluable when clothes catch fire, the lamp upsets, the chimney or curtains are alight, or the house is ablaze.

Little children are sometimes burned to death because they make a plaything of fire. They like to get hold of a box of matches and make a bright light by striking them; and then pinafore and frock catch fire.

Suppose we have a little brother or sister, and one day when we are alone with him or her the clothes or hair catch fire, what ought we to do?

In the first place, we must stop the child from rushing about the room or out into the passages and open air, which he will try to do, for that would make the clothes burn all the faster; we must seize a rug, a shawl, a coat, a counterpane, a blanket, a tablecloth, a jacket, or any big piece of woollen material, and wrap it tightly round him. That will stifle the flames, and they will go out for want of air. If a rug is near, we should roll the child on the floor in it, covering our hands as much as possible, or they will be burnt too. If we cannot get a rug quickly, we should roll the child over and over on the floor. Anyhow, we must either press out or smother the flames, and if the window be open, get it shut as soon as possible.

Lamps upset sometimes, or the paper shade falls on one side and catches fire. The burning oil flares up, and there is not a moment to lose. If possible, the hands should be wrapped in a handkerchief, cloth, or leather, and we must then bravely take the lamp at arm's length and hurl it out of the window or into the grate, and sop up the oil. There is, perhaps, a tablecloth on the table where the lamp stands; the corners of it should be taken up, and the burning oil smothered with them. To pour water on the oil makes it blaze away more fiercely; but flour, sand, or earth will put out fire. It sometimes happens that the window of a bedroom is left open, and lace curtains are

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blown over a lighted gas-jet. In a moment the curtains are alight. Here is our best course

of action now: We must first get on a chair and try to tear the burning curtains down, or, if we can do so, lift off the rods or poles. Then empty all the water at hand over them, or smother them with bed-clothes. As soon as possible we should shut the window and door to prevent a through current of air in the room. A syphon of soda-water squirted at once is a good thing to extinguish a small blaze.

Chimneys catch fire, usually because they are blocked up with soot, or the fire sets light to a beam of wood near. We must first put out the fire in the grate by pouring water or throwing flour, salt, sand, or earth over it, and then hold a board, wet blanket, tablecloth, or piece of carpet before the fireplace to keep the fumes out of the room, and to shut off a current of air from below. If the fire is very bad and likely to set the house alight, the fire-engine must be fetched, and the firemen will probably get on the roof and block the top of the chimney to keep all air out.

Now we come to talk of a very dangerous state of things—a house on fire at night when people are in bed and asleep. Sensible folk talk over this and think what they would do if it ever happened. In a high building they usually have a long coil of rope or a rope-ladder ready to fix on to the balcony, leg of a bedstead, or a large piece of furniture, so that escape is possible by the window. Failing these precautions, sheets and blankets can be knotted together into reef knots at the corners, as described on page 235, and used as a rope to climb down, the mattress being first thrown out of the window to soften a possible fall.

Sometimes people wake in time to notice a smell of burning, and, of course, get up and find out the cause; but often the first they know of a fire at night is being choked by smoke. They wake up in alarm; but before jumping wildly out of bed and running downstairs, they should stop to think a moment and find out the place of the fire and its state. We will suppose the fire is very fierce

when we open the bedroom door. If other people are in the house, we must, of course, call to them. We can do that while wrapping a blanket around us, thrusting our feet into shoes and tying a wetted towel or handkerchief around our head and mouth. Suppose the passage is full of blinding smoke. We should not try to walk upright, but creep on our hands and knees the nearest way to safety—upstairs, if the staircase is alight below us; downstairs, if it is alight above us. The air is freest from smoke close to the floor. Houses are now built so that tall ones must have a skylight, an outside staircase, or some means of exit by which we can reach the roof.

If we are in a school or a public building which catches fire, there is not only danger of being burnt, but risk of being crushed and trampled on when the crowd rushes wildly

to get out through one or two doors. In schools fire-drill is usual, and the children march out, exactly as their teachers tell them to do. Everyone gets out in the shortest time possible, and there is no blocking of the passages; but when panic occurs in a hall or big public room, and people hustle and press towards the door, it is wise to look out for another way of escape, for there usually is one, a back or side door, a window to be reached by piling chairs or forms on one another.

We should then break the glass and shout. Someone outside will probably see us or hear our cries and bring a ladder. If we are in the middle of the panic-stricken crowd, we are safest if we keep our head up, our arms doubled up in front of our chests, and our elbows to our sides. That gives us the best chance to breathe and resist pressure on the ribs.

## THE WIZARD'S WAND & THE MAGIC PURSE

As soon as he aspires to give a regular "show," the young wizard will feel the need of a proper "wand." The young reader may probably have imagined that the conjurer's wand was like the cap and gown of his schoolmaster, merely an item of professional costume. But in truth it is much more than this, and serves several purposes.

Though the spectator may be conscious in his own mind that it is a mere piece of wood like any other, a mystic tap with the wand, for the professed purpose of causing some magical change, goes a long way to make him believe that the change was actually produced thereby. Further, when necessary, the owner is enabled, by grasping the wand, to keep the hand partially closed, and so to conceal some small object therein. If he desires secretly to pick up or lay down any article on his table, the picking up or laying down of the wand gives him the opportunity to do so.

The young conjurer should therefore cultivate from the outset the use of the wand. A handy boy can easily make one for himself. Nicely rounded rods of hard wood, three feet long, and half an inch thick, are sold by most ironmongers for garden and other uses, at five or ten cents apiece. Procure one of these, cut from it a piece about twelve inches long, and cover this with black glazed paper. Over the last two inches of each end paste the same sort of paper, but white or cream in colour, and we shall have a wand just as good for practical purposes as if it were made of real ebony and ivory.

Having got our wand, we shall, as a general rule, come forward with it in our hand when about to begin a show. But we may now and then produce it in a more magical way. One very effective plan is to produce it from our purse, where we profess to keep it, along with our hard-earned pocket-money. Coming forward, and making a few introductory remarks, we look about us, as if seeking for something. "I am sorry, ladies and gentlemen, but I have mislaid my wand, and till I find it I cannot do anything. Ah! I

remember now, I put it in my purse." And we produce it from our purse accordingly.

We have to admit that the last statement is not strictly true; but, however truthful we may be in private life, as a conjurer we have a sort of special licence to romance in this way; indeed, when one comes to think of it, a conjurer's whole performance is a sort of fairy tale in action. As a matter of fact, the wand is not yet in the purse, but is hidden in our left sleeve, its outer end resting against the lower joints of the bent second and third fingers. If the first and fourth fingers be left partially extended, the curvature of the other two will appear perfectly natural.

We have two purses, bag-shaped, and alike in appearance, as shown in the picture. One of these is unprepared, but the bottom seam of the other is ripped open for about an inch and a half, making a secret passage into the interior. The inner pocket remains intact, and in this we place a few coins: pennies, dimes, or quarters, according to the state of our finances. The other purse is left empty. The two are placed, one against the other, in the left trouser pocket. We must remember which we place outermost.

To work the trick, we place the left hand in the pocket, and take out the prepared purse. Transferring it to the right hand, we open it, and pour out the coins upon the table. Returning it, still open, to the left hand, and placing the fingers of the right hand inside, we get hold through the opening of the end of the wand, which we then proceed to draw out through the mouth of the purse. If we do this boldly and neatly, standing meanwhile with our left side turned towards the spectators, no one can detect that the wand comes from the sleeve. When the wand is clear we close the purse, put it back into the pocket, and remove the hand. Then, as if bethinking ourselves, we say: "I mustn't forget my money, though." So saying, we thrust our hand into the pocket again, and bringing out the *unprepared* purse, place the coins therein. We must not offer it for inspection, but if any inquisitive person asks leave to examine it, we may safely let him do so.



# HOW TO MAKE A WHEELBARROW

THE wheelbarrow shown in picture 1 is designed to give as little trouble as possible in making. It is a toy wheelbarrow suitable for boys. The wood used in the sides, bottom, and front is three-quarters of an inch thick. The wheel, legs, and axle-bearers are one inch thick. The kind of wood used is ordinary pine. It should be planed all over, and the barrow, of course, will look better if it is painted.

The wheel by itself is shown in picture 2. To make it, we take a piece of wood one inch thick, and large enough to mark on it a ten-inch circle, which represents the diameter of the wheel. We mark the circle and then saw round outside the line with a bow-saw or a keyhole saw. Another way is to cut the corners off with a tenon saw and then finish to the line by paring with a chisel. In both cases a chisel should be used after the saw to cut exactly to the circle, and after the chisel a spokeshave may be used to remove chisel-marks and to round the edges slightly. A wood-turner would make the wheel for a few cents, and it would be much better made than if made with a saw and chisel. Bosses, or side pieces, about two inches in diameter by three-quarters of an inch thick, are put on each side of the wheel as shown. Their purpose is to keep the sides of the wheel from rubbing against the pieces in which the axle-ends fit. The bosses in the picture are shown of round shape, which is neatest, but they will do quite well if they are not round, but square or of any other shape.

They should be nailed on exactly in the centre. The next thing is to fit an axle. This must be put into a hole bored through the wheel, and must fit rather tightly and stand out one inch at each side. A piece of quarter-inch wire, four and a half inches long, or a piece of ferrule about half an inch in diameter, will

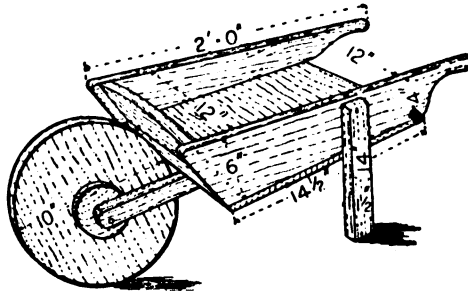
be best; but if these cannot easily be obtained, a wood axle made from three-quarter-inch or half-inch birch dowel-rod will do. The hole through the wheel should be bored half-way from one side and half-way from the other, great care being taken to start exactly in the centre. The holes will probably not

meet quite in line, but this will ensure a tight fit for the axle. If the hole is bored right through from one side it is certain to come a little out of centre on the farther side, and this will cause the wheel to wobble instead of running truly with its axle.

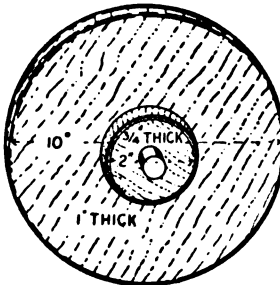
For the body of the barrow two pieces are required for the sides, as seen in picture 3.

The handle part is marked to a suitable shape roughly by freehand, and worked with chisel and spokeshave. To get both sides alike one should be cut first and the other marked from it by placing them together and marking round with a pencil. The piece for the bottom is sawn fourteen and a half inches long and nailed on the under edges of the sides, as in picture 1. The piece for the front, shown in picture 5, fits between the sides, and its bottom edge is bevelled to allow it to slope. As the sides of the barrow are parallel in both directions, the ends of the front piece simply have to be made square. Its top edge will look better if it is curved as shown. The size and position of the legs is shown in picture 1. They are fourteen inches long, one and a half inches wide, and one inch thick, and have their top outside corners curved a little so as to look well. The best way to nail them is from the inside of the barrow, but one or two nails may be put through from the outside into the end grain of the bottom.

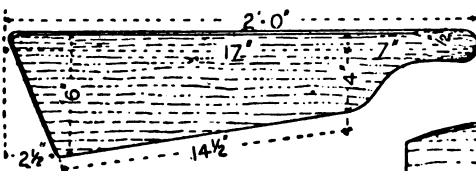
The only thing now left to do is to make the axle-bearers, shown in picture 4, and put them on with the wheel between them. They are the same width and thickness as the legs, but are eighteen inches long. The holes for the axle are bored towards the lower edge because the wood above has to bear the



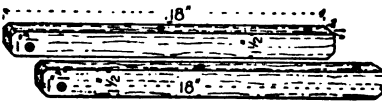
1. The wheelbarrow finished



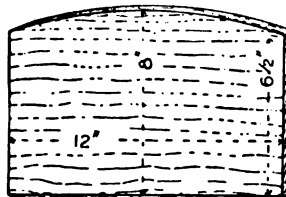
2. Wheel of barrow



3. Side of body



4. Axle-bearers



5. Front of barrow

weight of the barrow. The axle-ends should be an easy fit in these holes. They may be eased out and smoothed with a red-hot poker if the hole bored with the bit is too small. A little grease should be used afterwards to make the axle run easily.

The best way to attach the bearers to the bottom of the barrow will be to screw them, and it will be easier to put screws two inches long through the bearers into the bottom than through the bottom into the bearers, though the latter way would be a little stronger. Turn the barrow upside down and lay the

bearers, with the wheel between them, on it. Adjust them in the middle of the barrow and parallel with its sides, so that the edge of the wheel is about half an inch clear of the front of the barrow. Screw-holes should be bored through the bearers before this is done. No holes need be bored in the bottom, or only very small ones as a guide for the screws, and they can be made while the bearers are in position during screwing. The wheelbarrow is then completed, except that it may be given two coats of paint of any particular colour or colours that may be desired.

## WHAT TO MAKE FROM AN ELDER BRANCH

WE all know the common elder-tree which grows by the wayside, more like a big bush than a tree. It grows very quickly, and the juicy shoots soon harden into good, tough wood. If we take one of these and examine it we shall find that the shoot, or branchlet, is really a wooden tube filled with pith, which can be easily taken out, and quite a number of interesting things can be made from the tube.

First of all we can make a popgun, and for this purpose we must take a straight length of thick elder wood. We can push the pith out with an iron rod, if there is one handy, or, if there is not, with a rod made from a piece of oak, ash, pine, or any tough wood. This will afterwards do for the ramrod of the gun.

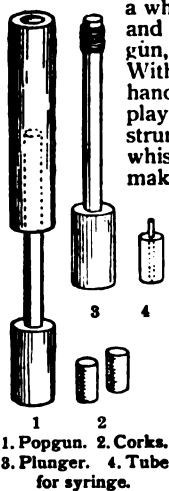
We must make this rod six inches longer than the gun, and must leave a shoulder, or thick part, to prevent the rod going right through the barrel. Picture 1 shows how this rod, or plunger, works. With knife, glass, and glass-paper, we make the rod nicely smooth and straight, for it must move comfortably in the barrel, being neither too tight nor too loose. If it be too tight it will split the barrel, and our work will be spoilt, and if it be too loose our popgun will not work. Before pushing out the pith we must rub the rod with soap, and, if necessary, tap the end of the rod with a piece of wood. When the rod is nearly through, the pith will spring out from the other end of the barrel. Then wrap a piece of sand-paper round the ramrod, tie it on at the shoulder end, and work it through the barrel from both ends. This will clear the inside and make it smooth. Now, if we take two small corks, shaped like those in picture 2, that fit the tube tightly, soap them to make them work easily, and put them in the end of the tube, we can fire them out by pushing the ramrod down quickly.

Next, if we tie a little worsted tightly round the end of the plunger, as shown in picture 3, and insert a tube or quill into one of the corks, as in picture 4, and fix the cork with the quill firmly into the end of the barrel, we shall have a most effective garden syringe. To make the necessary hole in

the cork we burn it through with a red-hot iron skewer. It is best in this case to bind the outside of both ends of the barrel with twine, so that it may not split. To make a whistle, remove the cork with the nozzle and blow across the top hole of the gun, which we hold with the left hand. With the handle of the plunger in our right hand, we may, with practice, be able to play some simple tunes. We play the instrument in the same way that we should whistle with a key or with pan-pipes, making the scale by pushing the plunger up or pulling it down the barrel.

We can do something, too, with the pith which we took out of the tube. We first of all need a very sharp knife, and of course we must take care of our fingers. From a small piece of pith, about an inch and a half long, we cut a slice off both sides, and then sketch a design for the figure of a man upon the flat surface of the pith. Next we carefully trim away the pith with our knife until we have the shape that we want. Suppose we decide to make a little sailor boy as shown in picture 5. The cap and arms may be made of separate pieces of pith and stuck to the body. After getting the figure ready in this way, we paint the hands and face a nice pink, the jersey white, the jacket blue, the trousers white, and the boots black. The cap can be white, with a band marked "Nelson," for the name of the sailor's ship. This name we print with Indian ink or gold paint with a mapping pen. We must be sure to give the boy bright, laughing eyes, a well-shaped nose and chin, rosy cheeks and red lips. If we do all this our sailor lad will look a fine, brave fellow, quite ready for action. We make a base for the sailor to stand upon by cutting a large round leaden bullet in half with an old knife.

Of course there are all kinds of figures we can make out of the pith, soldiers, policemen, postmen, nurses, and the like, and we can also model little animals and birds, and colour these as we find them in Nature. In fact, if we are careful we shall get skilful enough to make a whole collection of quaint and dainty little articles that will be very interesting and amusing to us and to our friends.



1. Popgun. 2. Corks.  
3. Plunger. 4. Tube  
for syringe.



5. Pith sailor



These broken stone pillars are the petrified remains of a huge forest in the State of Arizona.

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## FORESTS AND DESERTS

WE have learnt that the greatest forces which make the history of the earth are the deepest. Those that do most make the least noise, and it is only after long study and thought and work that we recognise them, largely because things that are nearer the surface catch our eye. In just the same way it is the mothers and the fathers, and their relations to their children, that really make the history of a nation; but politicians think that they themselves make it, and historians fall into the same mistake.

Nevertheless, there are a great many wonderful and interesting things that are always happening on the surface of the earth, and that change it quite enough to make all the difference to our lives. So now we must leave alone five-sevenths of the earth's surface, which is covered with water. We must say no more about where the water has come from and what will happen to it, though we must remember that it is not fixed for all time; and we must make a study of the two-sevenths of the earth's surface that shows above the water. We are really creatures of the land, and we depend upon other creatures of the land; and as we breathe air, and cannot live under the water, it is the land that we can study best. So we shall keep

CONTINUED FROM 3008



to the land, but in so doing we must remember that it is only a fraction of the earth's surface, and a shifting fraction at that. But it is, on the whole, an increasing fraction. If we examine the surface of Mars, we find that Mars, too, has had oceans, and we even find the very interesting fact that the continents of Mars were pointed to the south, as those of the earth are. But the ocean-beds of Mars are now uncovered by water. The planet has become drier.

There can be no doubt that this process, which has gone farther on Mars, is also occurring on the earth. When we study, for instance, the continent of North America, we obtain proof that, long ages ago, the area of dry land corresponding to that continent was quite small. This gradual drying up of the surface of the earth, the geologists have proved, not only as regards North America, but as regards Europe, for there was a time when only the north of Scotland and Scandinavia were above the surface of the sea. This gradual loss of water, and the appearance of dry land, occurs upon a planet, such as the earth or Mars, or upon an even smaller body, such as the moon, in two distinct ways. In the first place, water always tends to evaporate into the air, in the form



of gaseous vapour, but the molecules of water, flying about in the air of a planet, are very apt to fly completely away. This entirely depends on their rate of movement, and on the size of the planet. For each planet there is a particular rate of movement among the molecules of gases in its atmosphere, which the planet is able to control.

**THE EARTH IS CONSTANTLY LOSING WATER THAT FLIES OFF INTO SPACE**

The bigger the planet, the greater its attractive power, and the faster the rate of movement which it can control. But when the molecules of water or any other gas exceed this rate, they are liable to escape into space, never to return. This process goes on constantly, and is one of the most important facts in the history of a world. As we know, the ocean is always being lifted into the air by evaporation under the influence of the sun. Most of what is lifted up returns as rain, but a small quantity is lost for ever. This has to be taken into account when we say that, owing to the attraction between free hydrogen and oxygen to make water, the amount of water on a planet increases. This is probably true, but the planet does not keep all that is made.

Now, there is a second way in which the surface of a world, such as our earth, or Mars, or the moon, becomes dry, and that is by loss of water into its interior. As long as a planet is molten, there are no breaks in its surface, but as it cools and shrinks, cracks and wrinkles appear upon it, and so there is the loss of water which trickles through from its surface into its interior.

If these arguments be true, we should expect to find illustrations of them in the cases of the earth, and Mars, and the moon. The smaller a world is, the sooner must it lose its seas, since it has less power of gravitation by which to hold on to the vapour in its atmosphere.

**WORLDS WITHOUT WATER ARE WORLDS WITHOUT LIFE**

Now, the earth is bigger than Mars, and Mars is bigger than the moon; we should expect, therefore, to find exactly what we do find. On the earth, the sea-basins are still filled with water, though the level of that water is slowly falling; on Mars, the ocean-beds are only just moist enough to nourish plant life; and on the moon, they are

quite dry, and contain nothing at all. It is a very significant fact, which strongly supports these new discoveries, that the level of the inland seas of the earth is falling—for instance, the Caspian Sea, the Dead Sea, and the Great Salt Lake. Now, the level of the first two is below the level of the ocean, showing how they have been slowly emptied since they were left behind by the retreating ocean. That such is their history, we know when we see forms of life found in the ocean still present in the Caspian Sea. In the cases of both the Caspian Sea and the Great Salt Lake in Utah, we know with some degree of preciseness the rate at which they are falling.

Now, all this has a tremendous meaning, and is of supreme interest and importance to those who spend their lives in studying these matters, and who, until only a very few years ago, have not been able to understand the history of the earth between the time when it was first formed and our own. It is the wide study of the earth as a whole, especially when compared with the moon and Mars, that is teaching us these remarkable lessons. We owe them mainly to Professor Lowell, of the Lowell Observatory in Arizona.

**THE DRYING UP OF THE WORLD AND WHAT IT MEANS FOR MAN**

The loss of water from the surface applies not merely to the oceans, but to what we call the dry land. Now, we have already learnt that all life is lived in water, and we shall be prepared to understand that the loss of water from the earth, until at last the ocean-bed becomes dry land, must be a serious matter. After all, when the surface of the ocean falls, there is nothing to record that deeply affects life. But when water leaves the dry land, the most glorious forests, the most splendid fields of waving grass, must become deserts.

Now, it seems quite plain that the existing deserts of the earth mark the beginnings of this drying-up process, and its most serious consequences. Deserts are terrible places. Those who know them tell us that not until we know them for ourselves can we realise what the lack of water really means. One of the great desert belts of the earth includes the deserts of Central Asia, Arabia, the Sahara, and Arizona in America. Those who travel there begin to realise

what water is worth for life. Now, it is a very astonishing fact that we find definite evidence of the drying up which made these deserts. In Arizona there is a mighty forest which has been all turned to stone, since it lived millions of years ago. When that forest grew there was water; there is no water there now, or almost none, and life is no longer possible, except to a small extent.

**HOW LANDS THAT WERE ONCE FRUITFUL HAVE BECOME LIFELESS DESERTS**

There are also records in our own half of the world, as, for instance, in North Africa and in Palestine, of the same drying-up process. It seems that in both these cases the slow making of the desert, and its creeping over what was once the habitable earth, has gone on quickly enough for even the brief period of history to record. On the south coast of the Mediterranean Sea, practically at the edge of the Sahara Desert, we find the remains of mighty aqueducts which carried water to Carthage. The size of these ruins teaches us what has happened. The streams that to-day exist in that neighbourhood could not begin to fill these aqueducts. The land is drying up, just as Palestine, which is now largely a desert, must have dried up since early Old Testament times.

If we turn to the case of our neighbour Mars, we should expect to find that the extent of the deserts there is greater, and this we do find. It is only the sea-bottoms that still hold vegetation. Five-sevenths of the surface of our earth is ocean; five-eighths of the surface of Mars is now a dry desert. The very name of Mars now has a new meaning for us. The planet was named after the god of war, and therefore of blood, because it has a red colour.

**THE FORESTS THAT MAKE FOR LIFE AND THE DESERTS THAT BRING DEATH**

This red colour is the colour of the desert. When the deserts of the earth are looked down upon from a mountain peak, they show just the same tint as the deserts of Mars do when looked at through our telescopes. Like our own deserts, they change scarcely at all during the seasons.

If we grasp the tremendous meaning of the difference between a desert and a forest, we shall find a new interest in geography. In other parts of this book we learn something of the work

of water, and of the meaning of the green leaf. The desert is where there is no water, and therefore no green leaf, except at the little spots here and there that are called oases. We have to think of the desert as dead. The forest, on the other hand, is not only alive, but the source of more life. Its green leaves are making animal life possible, for they are providing the food which animal life requires. The trees of the forest are purifying the air, splitting up carbonic acid, and sending back pure oxygen to it. They are changing the soil and enriching it in a thousand ways, and all these ways are making for life. This is true even if we think of the remains of the trees as turning into coal, and serving the life of creatures, such as ourselves, that come into being ages afterwards.

Now, the great continent of Africa, which our English cousins are so largely responsible for, and which their explorers, mainly, have discovered, supplies the world at the present day with the most tremendous instance possible of the meaning of desert and forest, and of the contrast between them. This is a point of deep importance both for the present and for the distant future.

**THE GREAT DESERT AND THE GREAT FOREST OF DARKEST AFRICA**

When we look at the great body of Africa, two tremendous features must strike our eye, for it furnishes us, on a gigantic scale, and in the most striking possible way, with an illustration of the two extremes that the land of our globe still furnishes. The great mass of the northern part of Africa, we know, is occupied by the desert which is called the Sahara. To the south of this, on the other hand, there is a mighty forest, which may be called the Congo forest. Right in the middle of Africa, closely corresponding to this forest, is a great river, which is called the Congo.

The basin of the Congo River corresponds to the Congo forest. The area of green extends rather farther north, and is helped by other rivers, such as the Niger, to some extent. The names of the rivers matter nothing. The point is that here is water, and here, therefore, are green leaves. It is of little consequence what colour we give to this part of Africa in our maps. A map made by someone who thought of

# FORESTS AND DESERTS OF THE OLD WORLD



We all know that the moon has no water on its surface, in other words, that it has dried up. But not many people are aware that our own earth is also drying up, and that the deserts are spreading. In this map of the Old World we can see at a glance where the forests, the woodlands, and the grassy plains are; and we see also the great desert belt stretching right across Africa and Asia. Inland waters like the Caspian Sea are becoming shallower as the years go by, and in the desert of Gobi, in Central Asia, a great lake called Lob-nor has dried up within the last century or two. The great Swedish explorer Dr. Sven Hedin found in this desert remains of great cities and trade routes, proving that a few hundred years ago it was a flourishing, fertile country.

The photograph of the petrified forest on page 307 is by Messrs. Underwood & Underwood, London.

# FORESTS AND PRAIRIES OF THE NEW WORLD



In the New World the same process of drying up is going on, and in Arizona there is a desert where once was a flourishing forest. We can see in this map the great forests and grass plains of America, which are fast disappearing as the population increases. The wholesale removal of forests is a disastrous thing for a country. The reckless destruction of protecting pine forests in the French Alps last century, for instance, led to the steep mountain-sides being washed bare of soil, and, as a result, in thirty years the population decreased by over 25,000. The great treeless plains of North America are called prairies, meaning "meadows." In South America they are called pampas, meaning "plains," and in Europe we call them steppes, which is Russian for "heaths."

Africa as part of a living, changing world would have this great area painted *green*, and the still greater desert to the north of it would be painted *brown*.

Now we know what the brown area stands for—desert, dryness, death. We know something of what the green area stands for—moisture, life present, and life to come. Now, this particular green area is of more interest, really, than any other on the face of the earth, and that for a number of reasons, which we shall now begin to see.

**THE FOREST THAT IS BEING DESTROYED FOR RUBBER THAT NO MAN CAN MAKE**

It is interesting for its gigantic size and for its near neighbourhood to the other possible extreme—that great desert. It is interesting for its immense wealth of many kinds; and it is especially interesting because certain things are happening there which it is in the power of man to control.

There is a substance called rubber, which has so many valuable uses that one cannot name half of them; and there is nothing else in the world that will take its place for these purposes. It is a product of a plant; indeed, it is made by the green leaf. At present chemists are quite incapable of making rubber artificially out of the elements which compose it. It is scarcely possible to name a more valuable or useful discovery than that would be—the making of artificial rubber.

Meanwhile, rubber is demanded, and the Congo forest has to supply it, as it supplies many other things, too. This means that the people whom we call civilised men, such as ourselves, are making inroads into this forest on all sides, and this has very serious consequences. One is, that we are not taking care of the green vegetable life, which is really so priceless. Whenever we want to make a clearing, we just do so. This process is steadily going on, and more rapidly every year. We are thinking merely of the present moment, and are absolutely careless of the future and its needs.

**HOW THE LOWER RACES OF MEN ARE BEING DESTROYED BY CIVILISATION**

Now, there are very special reasons for bitterly regretting what is going on in the Congo forest, and however comfortably we ride on rubber tires on our motor-car, or cycle, we ought to know the price that is being paid for them.

There are certain kinds of life, nourished and sustained by the leaves of this great forest, which are not to be found anywhere else in the world, and which are immensely interesting. In the first place, there are several kinds of human life which foolish and brutal men may despise, but which wise men and wise children will understand to be precious, if only because of what they teach us about mankind in general.

Unfortunately, all over the world, what is called the "advance of civilisation" is leading, as in the mighty Congo forest, to the slow but apparently quite certain destruction of all the humbler forms of human life. It is not merely in the Congo forest that this is occurring. In the case of the primitive inhabitants of Tasmania, and in other cases, the process has been finished, and these races no longer exist. As things are going at present, all over the world, it is probable that about a century will see the end of all the lower races of men.

**THE STORY OF THE GORILLA WHICH MEN ONCE THOUGHT WAS A FAIRY TALE**

Even if we admit that they are lower than we are—and that is true in some ways—yet they are deeply interesting, and have many lessons to teach us. Once they are actually wiped out of existence, the possibility of learning those lessons is, of course, gone for ever and ever.

Now, in the Congo forest, which we are to study specially, because it contains in itself all the lessons that we should learn, there are not only lower races of men, which are being destroyed just as the trees themselves are being destroyed, but there are also two kinds of monkeys which we do not find anywhere else, and which are more interesting than words can say. It is really only quite lately that we have known of their existence, and we still know very little about them. They are called the chimpanzee and the gorilla, and we see their pictures on page 603. It is only a few years since the death of the great traveller, Du Chaillu, who rediscovered the gorilla, and whose story of adventure nearly everyone believed to be a made-up fairy tale for many years after his return from Africa. Now, though our knowledge of these creatures is so recent, and though no limit can be placed to what they might teach us, they are rapidly disappearing. The best authority on the subject

believes that the whole Congo forest cannot contain more than ten thousand gorillas, and there are none anywhere else in the world. There are probably not more than a hundred thousand chimpanzees. Now, these numbers may not sound small, but really they are very small indeed.

**THE MAN-LIKE MONKEYS NOW DISAPPEARING FOR EVER FROM THE EARTH**

Think of a little American country town with a population of ten thousand, and imagine that this was the whole human population of the globe; then imagine those ten thousand gorillas scattered in an immense area, which would hold the whole of England many times over, and depending for their lives upon the existence of a forest, which was daily being destroyed. That is what is happening to the gorilla, and to the chimpanzee in the Congo forest now. As things are going at present, only a generation or two will see them both extinct for ever. All this matters nothing at all to many of the people who rule the world at present. They have never seen a gorilla, and never want to, unless they can make money out of it. But, to students of Nature and of human life, it matters very greatly that these marvellous creatures should be on the point of disappearing for ever from the surface of the earth, though mankind has only just become aware of their existence.

The gorilla and the chimpanzee possess hundreds of features in their bodies which are possessed by no other creature on the face of the earth, and no other creature that ever existed, except man. There are several diseases and disorders to which we are subject which no other creatures in the world suffer from, except these two, and the two other kinds of man-like apes, the gibbon and the orang. By studying these creatures we have lately learnt some facts about human disease which are worth all the rubber in the world, all the rubber that ever was, or will be.

**THE CRY FOR RUBBER WHICH DESTROYS FORESTS AND BRINGS HAVOC TO MEN**

At the present moment our blind and wasteful ways are working havoc on almost every part of the earth, and nowhere more disastrously than in this mighty forest. We must have rubber for our tires, we must have it quickly and cheaply, and as long as the supply lasts for us, we do not care what

happens next; we do not care that we are interfering with the future supply of rubber, that things too horrible to mention are happening to the unfortunate human beings who are the children of this forest, and that the man-like apes of marvellous kinds, to be found nowhere else on the surface of the earth, are being rapidly wiped out; and our ears will be deaf when, in some time to come, men will look back upon us and marvel that there ever could have existed human beings so selfish, so wasteful, so careless of knowledge and life.

Quite lately, in our own country, the people and the politicians have begun to learn what the men of science have been saying for many years past. It is that part of our duty to the world, and especially to our children and to theirs, is to plant trees. An old rule used to be that whenever a man cut down a tree, he must, at any rate, plant a new one to make up for it. They have forgotten that good rule in England. In America we never observed it, and thousands of acres of glorious forest, hitherto untouched by any hand but Nature's, have been cut down at an alarming rate.

**THE TREE THAT WILL GROW WHILE THE GROWER SLEEPS**

Men do not understand that all human life depends upon the green leaf, and that to cut down trees is to hack at the rope by which we are hanging. But the time is certainly coming when we shall be wiser. Sir Walter Scott, in a famous novel, "The Heart of Midlothian," quotes the dying words of an old Highland laird, or landowner, to his son: "Jock, when ye hae naething else to do, ye may be aye sticking in a tree; it will be growing, Jock, when ye're sleeping." It is strictly true that the man who makes two blades of grass grow where one grew before is serving mankind, and so when we see the rather long word afforestation, we must remember that it means making forests, and turning waste and bare places into the homes of life of every kind. And just as it was said of some destroyers, "They made a desert and called it peace," so it shall be said of those who help Nature in her great work, "The wilderness and the solitary place shall be glad for them; and the desert shall rejoice, and blossom as the rose."

The next part of this begins on page 3227.



## THE MOST FASCINATING QUEEN IN HISTORY



This is a picture of Mary Stuart, Queen of Scots, who is said to have been so beautiful and so wholly charming that no man could long resist her fascination. She was crowned when scarcely a year old and married Francis II, the young dauphin of France, when she was fifteen. Upon the death of the dauphin she became the wife of her cousin, Lord Darnley. Despite her beauty and winning ways the young queen's reign upon the throne of Scotland was full of troubles, which finally ended in her tragic death at the hands of Queen Elizabeth of England. In the background of the picture we catch a glimpse of the beautiful turrets of Holyrood Castle, where the rooms that were the apartments of Queen Mary may still be seen.



SHAKESPEARE

The Child's Book of  
MEN & WOMEN

MILTON



The English carrying the sacred standard at the battle of Northallerton where the Scots were defeated

## KINGS &amp; QUEENS OF SCOTLAND

THE people of what we now call the United Kingdom of Great Britain and Ireland have built up the great British Empire. But it was not so very long ago that all the "three kingdoms" of England, Scotland, and Ireland became joined together. For many centuries England and Scotland were two separate kingdoms, with separate kings. We have read about the great kings and queens who ruled over England, or over England and Scotland together; but here we read of the kings and queens who ruled in Scotland when it was quite a separate kingdom.

In ancient days, about half of the lowlands of what we call Scotland to-day, the part that lies between the Forth and the Tweed, was a part of the kingdom of Northumbria. The rest was divided into the kingdom of the Picts and the kingdom of the Scots. Then a time came when a King of the Scots, named Kenneth M'Alpin, was chosen by the Picts to be their king, too. Kenneth and his successors were still called Kings of the Scots, or of Scotland. Afterwards a King of England granted the land between the Forth and the Tweed to a King of Scotland, and then that district also became a part of Scotland. We know very little about Scotland's

CONTINUED FROM 3002



kings till we come to Duncan, about the time when Canute, King of England, died. Duncan was slain by a powerful chief named Macbeth, who made himself king, and some of the stories of how he, urged on by his wife, killed Duncan and usurped the throne have been woven together into the wonderful play of "Macbeth" which Shakespeare wrote. But there is another story which says that Macbeth had a better right to be king than Duncan, and that he did not murder him, but killed him in fair fight.

However that may be, the first King of Scots of whom we know much was the son of Duncan, who won back the throne by slaying Macbeth; this was Malcolm, called Canmore, which means "Big-head," from whom all the Kings of Scotland, and of England, too, after King Stephen, were descended, because King Henry I. of England married Malcolm Canmore's daughter. Now, this Malcolm with the big head wedded Margaret, the sister of Edgar the Atheling, who was the true heir of Edward the Confessor; and that is why the blood of Alfred the Great flowed in the veins of his daughter, and of the children of Henry I., and of their descendants, right down to the present King George V.

JULIUS CAESAR



HERBERT SPENCER

Malcolm Big-head was a stout warrior, and he was ill-pleased that William the Norman had seized the crown of England; for he would have liked to see his own wife's brother, Edgar, on the English throne. Therefore, Malcolm fought battles against both William the Conqueror and his son William Rufus, in one of which he was slain. He was a wise and brave king, and he had great love and reverence for his learned wife Margaret, who was held to be a saint.

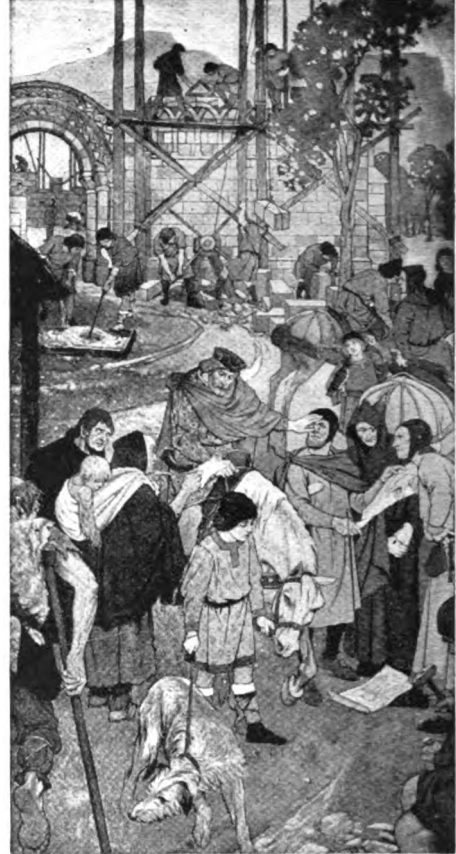


MARGARET ARRIVING IN SCOTLAND IN 1066

When Malcolm was dead, there were evil days, for his sons were very young, and his brothers fought each other for the throne. But after a time Malcolm's son Edgar became king, and then another son, Alexander I., and then a third, King David I.; and all these three ruled wisely. But of them David was the most famous, for he made his kingdom strong. Moreover, he was a pious man, who built many fair churches and gave much land to the Church,

for which reason he was reputed to be a saint like his mother Margaret.

One of his descendants said that he had been "a sore saint for the crown," since he had made the Kings of Scotland poor that he might make the Church rich. King David was defeated in a great battle in England at a place called Northallerton, which is called the Battle of the Standard, because the English fought under a standard which was counted sacred. The battle was



THE GOOD DEEDS OF KING DAVID THE FIRST

fought for this reason. In those days the King of England was also Duke of Normandy, and so he was both a French baron and an English king. Just in the same way the King of Scotland held earldoms in England, and was an English baron, though the kingdom of Scotland was not under the King of England. David fought as an English baron defending his liege-queen Maud against Stephen, who had usurped the throne. Although he was defeated

## THE KING WHO SET SCOTLAND FREE



Robert the Bruce is, after Wallace, the greatest national hero of Scotland, the man who delivered his country from the English yoke. But at first the fortunes of war went against him. After being crowned at Scone, with a small coronet, because the Scottish crown had been carried off to England by Edward I., Bruce was defeated at Methven, in Perthshire, and had to flee. His wife and daughter were captured by the English, as shown here.



Bruce drove the English out of Scotland and then set himself to build up his kingdom, so that he won the name of "the good King Robert." But the hardships of early years brought on a painful disease, from which he died in 1329. His last public act was to confer a charter upon the citizens of Edinburgh, as shown in this picture. The lower pictures on this page and on 3085, and those on pages 3080 and 3083, are reproduced, by permission, from the frescoes by William Hole, R.S.A., in the Scottish National Portrait Gallery, Edinburgh; the upper picture on page 3085 is by J. Faed, R.S.A.

and had to make peace with Stephen, he got nearly as much for Scotland as if he had won, because Stephen wanted to make sure that he would not invade England again during the civil war for the English crown.

After David, came a king who was called William the Lion, partly for his courage and partly because he bore on his shield a lion rampant—that is, a lion standing as shown on page 3079. Ever since then the lion rampant has been in the Royal Arms of Scotland; and now we see it in one quarter of the Royal Standard of the United Kingdom.

William made war on the English king, too; but one day, when there was a thick mist, he was riding with a small party of knights when he met a very much larger party, who turned out to be English. However, the Scots charged the English, but, after a hard fight, William and all his followers, except those who were killed, were taken prisoners.

#### HOW RICHARD LION-HEART FREED WILLIAM THE LION

Then the King of England, Henry II., would not set brave William the Lion free till he and the Scottish people had agreed that he should do homage for Scotland itself as well as for the earldoms in England. So for a time Scotland was subject to England. But fifteen years later, Richard Cœur-de-Lion put an end to the agreement, and after that, just as before, the Scots kings did not pay homage for Scotland.

For a hundred years after Richard restored the independence of Scotland, there was peace between the two countries. There is nothing more that need be told about William the Lion; and of his son Alexander II. it need only be said that he was a wise man and a strong ruler, and of such high honour that the English king, Henry III., when going to France, trusted to him to see that the northern part of England should be kept in order; but he would have been afraid that a less honourable man would have tried to foster disorder, and snatch advantage for himself.

After Alexander II. came Alexander III., who showed himself wise and prudent while yet a boy—for he was only seven years old when he began to reign—and he ruled for nearly forty years. And in those days Scotland prospered, and the king was greatly

loved and honoured. Of the things that he did, the most famous befell while he was yet a very young man. For King Hakon of Norway claimed that he was lord both of the islands round Scotland and of some part of the mainland, and he led a great force to extend his dominion.

#### HOW THE THISTLE SAVED SCOTLAND AND WAS MADE THE NATIONAL EMBLEM

However, King Alexander met the Norwegian king hard by the seashore at a place called Largs, and overthrew him utterly, so that King Hakon had to give up all his claims, and thenceforth the islands owned the King of Scots for their sovereign. And the story runs that it was at this time that the Scots took the thistle with its prickly leaves for their national emblem, because the Norsemen tried to make a night attack on the Scots army, but one of them, being barefoot, trod on a thistle and cried out, whereby the Scots took the alarm and stood to their arms, and, the surprise failing, the Norsemen were driven into the sea.

Alexander III. was killed through his horse stumbling and throwing him over a precipice, and his heir was his little grandchild Margaret, the daughter of Erik, King of Norway. Now, after a time, this little girl, who was called the Maid of Norway, set sail for Scotland that she might be crowned queen; but she came no farther than the islands of Orkney in the far north, where, being very ill, she was taken ashore to die. And thereafter came trouble, for, as we read on page 748, many barons came forward to say that one or another was now the heir to the Scottish throne, and out of this turmoil King Edward I. of England made his own profit, claiming that the Kings of Scotland were vassals of the King of England. And how he made himself master of Scotland, and how time after time the Scots rose up against the English rule, we need not go into here.

#### THE BRAVE KING ROBERT WHO FEARED NO MAN AND ALWAYS HELPED THE WEAK

Near the end of Edward's life, Robert Bruce claimed the Scottish crown for himself, and renewed the great fight for Scottish independence. Now, this great King Robert began with a deed which was evil enough; for, having resolved to claim the crown, he met one of the great barons, who



## JAMES III. PRESENTED TO THE NOBLES



When James II. was killed at the siege of Roxburgh, the Scottish nobles lost heart, but James's widow took the little king, James III., to Roxburgh, and so inspired the nobles that they pressed the English and made them surrender.



was called the Red Comyn, in a church in the town of Dumfries; and then the twain quarrelled, and Bruce slew Comyn before the altar. But from that time forth Robert showed himself always a mirror of true knighthood, for he was not only a very skilful warrior whom none could match in single combat, and a brave man who feared neither dangers nor difficulties, and a great general who could lead small forces to victory against large armies; but he was loyal and generous, tender to the weak, modest and gracious.

Many a fine tale is told of Bruce's prowess—how at one time three foemen set upon him at once, but he slew them all three; and how at another time he guarded the passage of a ford single-handed against a band of mounted men, because so long as they could only come at him one at a time he thrust them down one after the other, they not being able to cross the stream save at the one spot where he stood with his spear. As for the story of Bruce and the spider which taught him the lesson of perseverance in spite of defeat, we read that on page 2479.

**THE LONG STRUGGLE FOR FREEDOM THAT ENDED IN VICTORY FOR SCOTLAND**

King Robert had a hard task in setting his country free from the rule of a nation so much larger and wealthier than his own as was England, and it was well for him that for seven years King Edward II. of England was quarrelling with his barons, so that the full strength of England was never brought against Scotland. And in those years Bruce won back fortress after fortress and town after town from the hands of the English, till Stirling alone was left. Then at last King Edward marched with a mighty army to save Stirling; but King Robert met him at the field of Bannockburn, and utterly overthrew him. And after that again for many a year, while Edward and his barons went on quarrelling, King Robert sent armies into England to harry the country; till at last a treaty was made in which the English acknowledged that Scotland was an independent kingdom.

For twenty years King Robert had striven for the freedom of his country, which was won at last. But the long strife had given him no time and no chance to carry out his heart's desire of going on crusade to the Holy Land

to purge his soul for that wild deed of his youth, the slaying of the Red Comyn under the roof of God's house. And now he was dying of a disease which came of the terrible hardships he had endured. Therefore, before he died, he prayed the most trusty of his knights, Lord James Douglas, to go in his place, bearing with him to the holy sepulchre in a casket the heart from his body.

**HOW BRUCE'S HEART SET OUT FOR THE HOLY LAND BUT WAS BROUGHT BACK**

Now, when Lord James came to Spain, on his way to the Holy Land, he found the Christians there hard pressed by the Saracens; therefore he was willing to fight on their behalf. Then in a great battle, when it seemed that the Saracens would gain the day unless they were stayed by some deed of desperate valour, Douglas drew forth the Bruce's heart, and crying, "Go thou before, as always, and Douglas follows!" he hurled the casket into the forces of Saracens, and drove his way through them till he reached it, and there was slain. But by that charge the Saracens were routed, and a knight named Sir Simon, called Lock-heart ever after, found the dead Douglas and the Bruce's heart, and bore it home, deeming that the dead Bruce had now done full service in the war against the infidels. And the heart was buried under the high altar in Melrose Abbey.

Of David II., the son of King Robert, we need not tell; and after him came his sister's son Robert, the High Steward of Scotland, who began the line of the Stewart kings, whose name began to be spelt Stuart two hundred years afterwards. After Robert II. came Robert III., who changed his name from John to Robert for better luck, because both King John of England and King John Baliol of Scotland, and also King John of France, had been so luckless.

**THE KING WHO CHANGED HIS NAME FOR LUCK BUT DIED OF A BROKEN HEART**

Yet he was none the better for that, since his eldest son was murdered, and his second son, James, was caught on a voyage to France and held a prisoner by King Henry IV. of England—a blow which broke poor King Robert's heart, so that he died soon after. This young prince was the first of six Kings of Scotland, each of whom

## BEFORE AND AFTER FLODDEN FIELD



No more disastrous event is found in Scottish history than Flodden Field, where James IV. was defeated and slain with the flower of his army. Before the king set out, a venerable old man suddenly appeared in his presence and warned him against the war with England. But the king took no notice, and the stranger disappeared.



Flodden was a terrible battle for both sides, for even the victory of the English was nearly a defeat and their losses were very heavy. When the news of disaster reached the Scottish capital, as shown in this picture, it caused intense dismay, but the authorities calmed the people, and prepared promptly and firmly to resist invasion.

was named James. Between James V. and James VI. came the most famous of all Scottish monarchs, Mary Queen of Scots; and after Queen Elizabeth died, James VI. became James I. of England, almost two hundred years after Robert III. died. Now, of all those seven, only one, the last, reached the age of fifty. Not one was grown up on succeeding to the throne, and only one was so much as twelve years old. So we can fancy that the ruling of Scotland was no easy task, when every reign but one began with a regency. There was so much disorder that it is hardly strange to learn that of the six kings two were murdered and two killed in battle; none but the last of all ended his days in peace.

King James I. of Scotland was held a prisoner in England for eighteen years after he became king in name. One remarkable thing about him is that he is one of the very few kings who have been poets. James was in England about the time of the great English poet Chaucer; and, having fallen in love with a lady whom he saw through his prison window, who afterwards became his wife, he wrote a beautiful poem called the "Kinges Quhair," which means the king's book.

**THE GOOD POET-KING WHO LOST HIS LIFE THROUGH DOING HIS DUTY**

He was a good poet and a good king too, as he proved when he was at last set free and allowed to go back to Scotland. For there he found the country in great disorder and full of lawlessness; and, ruling with a strong hand, he protected the weak and curbed the nobles. Yet to do this he needed money, and the Scots kings were poor; so that he had to tax the people, so that there were many of them, as well as of the nobles, who were ill-content with his rule. And so it came about that Sir Robert Graham plotted against him and murdered him, as we read on page 240 in the story of the Golden Deed of Katharine Douglas, whom men called Kate Barlass.

James II., called "fiery-face," was killed by the bursting of a cannon when he was only twenty-nine. James III., even after he grew up, was but a feeble ruler, guided by base-born favourites; a lover of art and of books, but in no wise fitted to rule over a turbulent

country, and over barons who would not brook being lorded over by men of no account, merely because the king chose to like them. So the barons rebelled, and routed the king's forces; and he, flying from the battle, was thrown from his horse and murdered.

**THE BRAVE SCOTTISH KING WHO WAS SLAIN ON FLODDEN FIELD**

Then James IV. ruled, being just old enough to act without a regent. He was brave and handsome, and was very popular; also he took care of his kingdom, and in particular he tried to make Scotland powerful by sea; and the country prospered, and it seemed that better days were in store. And although he aided the pretender to the English throne, who was called Perkin Warbeck, against Henry VII., yet afterwards he married Henry's eldest daughter, Margaret.

So it came about, later on, that when Henry VIII. had no descendants left, the great-grandson of Margaret, who was the King of Scotland, became the heir of the English throne, so that the crowns of England and Scotland were united. Yet James IV. brought woe upon Scotland at the end; for when King Henry VIII. went to war with France, King James led an army into England because of an old alliance between French and Scots. And in the great battle of Flodden, James was slain himself, and with him the best of the nobles and of the soldiery. And a very famous song of lamentation for that disaster was made in Scotland, which is called "The Flowers of the Forest." Then came James V., who was an infant. And when he grew up, he, like his ancestors, had great trouble with his nobles, and also with his uncle, Henry VIII. of England, who tried hard to get him into his own power, though James would not trust him.

**THE NEWS OF DEFEAT AND DISASTER THAT CAME TO A DYING KING**

At last James prepared an army to make a raid into England; but it was put utterly to rout at Solway Moss. But when the news was brought to him he was very ill; and soon after, as he lay dying, there came a messenger to say that a daughter had been born to him; for he had no son. But all he said was: "It came with a lass, and it will go with a lass," meaning that the crown

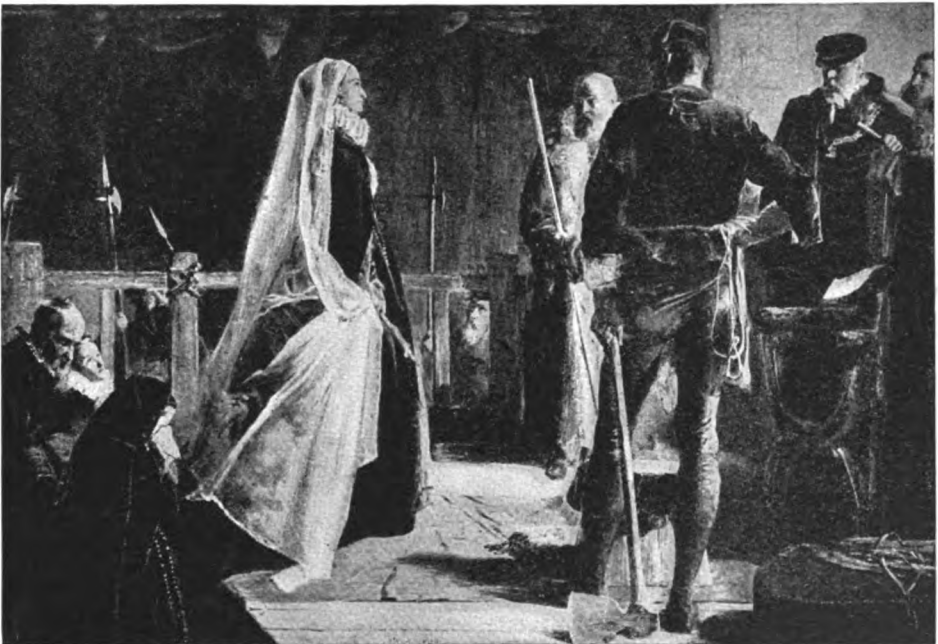
## "THE LOVELY, HAPLESS SCOTTISH QUEEN"



THE SCOTTISH NOBLES COMPELLING MARY QUEEN OF SCOTS TO ABDICATE THE THRONE



MARY QUEEN OF SCOTS ESCAPING FROM HER IMPRISONMENT AT LOCH LEVEN CASTLE



MARY MOUNTING THE SCAFFOLD FOR EXECUTION AFTER EIGHTEEN YEARS IN PRISON

had come to the Stuarts through the daughter of Robert Bruce, and it would depart from them with his own daughter.

This daughter became very famous as Mary Queen of Scots. While she was still a tiny girl she was sent away to France, that she might be out of reach of the English; and she was brought up in the Court of France, and was wedded to the king's eldest son; so that when the king died she became Queen of France as well as of Scotland. In the meanwhile, her mother, Mary of Lorraine, ruled Scotland. But Mary was Queen of France for only one year, because her husband died, and she was a widow at the age of eighteen; and an orphan, too, for in that year her mother died also. Then the young queen resolved to return to Scotland and rule for herself.

Now, during these years there had been a great change in Scotland, for most of the people had become Protestants, and hated the Roman Catholic religion bitterly, thinking that it ought to be rooted out altogether. Moreover, this new Protestantism was very stern, and its preachers, of whom the most famous was John Knox, condemned all kinds of amusements and merry-making.

#### THE BEAUTIFUL YOUNG QUEEN OF SCOTS AND HER TRAGIC STORY

But Mary Queen of Scots was a very young woman, very beautiful and fascinating, and she had been brought up at the French Court, which was exceedingly gay, where she had been taught the Roman Catholic religion. So that she soon found herself giving offence to John Knox, and to all who thought with him, who would have forbidden the practice of her religion altogether. And then she was unwise enough to marry a handsome young man, her cousin, Lord Darnley, whom she very soon found to be both bad and foolish. And because she put much trust in David Rizzio, who was her secretary, Darnley had ill thoughts of her; and he, with several nobles, made a plot to slay Rizzio, and they did so, murdering him before the queen's eyes.

After that she had a great hatred for her husband; and when he, too, was murdered, a year later, and she wedded the Earl of Bothwell, whom all believed to have done the deed, everyone believed also that the murder had been

done with her aid and goodwill. Then many of the nobles rose against her, and took her prisoner. They shut her up in the castle of Loch Leven, and made her give up the crown to her baby son, who became James VI. Then she escaped from Loch Leven, and her friends gathered to her; but the other party came against her, and routed her forces at Langside, near Glasgow; and she fled across the Solway into England, and called upon Queen Elizabeth to aid her.

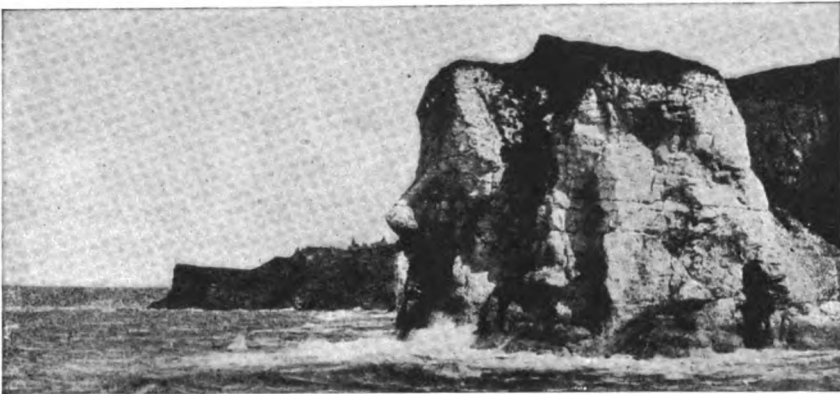
#### WHY ELIZABETH WAS AFRAID OF MARY AND HAD HER BEHEADED

Now, Elizabeth was the last daughter of Henry VIII., and Queen Mary would be the heir to the English throne if she died. Besides, the Roman Catholics thought that Elizabeth herself ought not to be queen, and some of them were anxious to try to make Mary queen in her stead. Therefore, Elizabeth would not let her go free, and yet she had no right to put her to death, even if she had a share in murdering Darnley, which had not been proved; for she was not a subject of the English queen. Therefore, for eighteen years, Elizabeth kept Queen Mary a prisoner. There were many plots, in which the King of Spain had a hand, to destroy Elizabeth and set Mary on the throne; but we have no proof that Mary herself shared in them. But at last a young man named Babington made a plot, and a letter was shown which Mary was said to have written approving of the plot. Then the Queen of Scots was condemned to death for plotting treason against the Queen of England; and she was beheaded at the castle of Fotheringay, where she was held a prisoner.

#### THE KING OF SCOTLAND WHO BECAME KING OF ENGLAND

When Mary had been made to give up the crown, her son, who was only one year old, was proclaimed king as James VI. Regents ruled for him, but when he was just a boy he started to rule himself through favourites. But his favourites were not liked by the people, who were also angry with him because he tried to make them have bishops in their churches. When he became King of England he went to live in that country, and we read of his doings from that time in the part of this book that begins on page 1021.

The next Men and Women begin on 3243.



## WHY IS MEDICINE NASTY?

IF we carefully study the laws of taste, what is liked or disliked, among the lower animals and among children, we find a general rule which should be a lesson for us all. The rule is not seen in the case of grown-up men and women, as their ideas of what is nice and what is nasty have been gradually altered by habit, and they think many things nice which no one could have persuaded them to touch when they were children.

Now, the rule we discover is that, in general, the natural, suitable, healthy foods of the creature we are studying are the things it likes. Everything else, as a rule, it finds nasty. No one would say, for instance, or at least no one who knows anything about it would say, that whiskey is a natural food for human beings, though many grown-up people take it as if it were a food, and not a medicine. But no child likes whiskey, and many medicines are not nearly so nasty as whiskey, which is really a medicine for sick people, and not a food for healthy people.

Our opinion of what is nice and what is nasty is the natural guide to what is a good food for us and what is not. It may sometimes lead us wrong to trust to this, because appetite is sometimes misleading, as sometimes it leads animals wrong; but we should be badly

CONTINUED FROM 3036



off without it, and it is a pity we do not use it more. A very interesting thing is that when the doctor wants to make his medicine less nasty, and as nice as possible, he adds some flavouring matter which has been got from a natural food of human beings. Fruit, such as oranges, is one of our natural foods, and the doctor uses nothing more often than tincture of orange-peel to make medicine less nasty.

### WHY DO FLOWERS VARY IN COLOUR?

We do not know in any clear way what originally produces the different colours in different flowers. We cannot alter the colour of any particular flower to any great extent, even when we have the seed from the beginning, unless, indeed, we blanch it by growing it in a soil that has no iron. The colour of a particular flower is what it is through *heredity*—the general law that offspring resemble their parents.

This acts in a very remarkable way in some cases which are now being studied, especially in the colour of sweet-peas, which vary a great deal, as we all know. It may seem to us that these variations are just haphazard—white and pink and purple, and so on, occurring by chance in flowers of the same plant. But it is not so. The different colours occur



in regular proportions, due to the way in which the laws of heredity work; and if we take seed from these flowers, and grow it, we find that these laws are still maintained in the colour of the flowers of the next generation. We know, too, that the single cell from which every plant starts contains tiny living parts that determine what colour of flowers it shall have, and what proportion of each kind of colour is to be in these flowers.

**WHERE DOES THE FOG GO WHEN IT CLEARS UP SUDDENLY?**

The answer to this question is not fully understood, but we know quite well what happens in certain cases. For instance, a wind, warm or cold, may come in and drive the fog before it, exactly as the air of a room where several people have been smoking may be cleared by making a draught. Or sometimes a fog clears suddenly because the air gets warmer, as may happen in various ways. A fog is only possible when the air is below a certain temperature, and if the sun, coming through clouds, or an inrush of warm air, raises the temperature above this point, the fog will suddenly disappear.

But electricity is also concerned in this question. We know that it is possible to disperse a fog artificially with great speed by means of electricity. This has lately been proved by an English scientist, Sir Oliver Lodge. Now, electrical changes constantly occur in the atmosphere. Indeed, we are beginning to learn that they are the principal causes of the weather; and I think it is very likely that sometimes when a fog suddenly disappears, as if by magic, it is because of some electrical change in the air, of the same kind as that produced by Sir Oliver Lodge's machine for dispersing fogs.

**WHY ARE OUR VEINS BLUE WHEN OUR BLOOD IS RED?**

The blood in the veins is certainly not blue, and there is no such thing as "blue blood"; but it is quite different from the bright red of the fresh blood that has come from the lungs and travels to the body through the arteries. We see the light reflected back to our eyes from this dark red blood through the walls of the vein, and it is these walls that give it its bluish tinge. If we have seen the dark, dull colour of the blood

as it runs in the veins, we shall easily understand that it needs only a little change of its colour to make it a dull blue.

**WHAT HAPPENS TO THE CARBONIC ACID GAS THAT WE BREATHE OUT?**

There is always a certain proportion of carbonic acid gas in the air, even in the open air. The carbonic acid gas we breathe out is added to this, which is indeed the product of the past breathing of countless millions of animals and of the burning of carbon in countless fires. The air, rich in carbonic acid, that we breathe out does not stay by itself, so to say, but the various things composing it, including the carbonic acid, gradually spread themselves out into and mix with the air around them.

This very important law is true of all mixtures of gases. Whenever different gases are put together, the molecules of the one gradually pass among the molecules of the other. This is called the diffusion, of gases. So by means of diffusion the carbonic acid gas that we breathe out is, before long, quite equally mixed with the rest of the air. As we know, it does not remain for ever in the air unchanged, for, wherever there is green vegetable life, some of the carbonic acid of the air is decomposed, the carbon being taken into the plant and the oxygen left in the air to add itself to the free oxygen which is always present in the air.

So the carbonic acid goes on a ceaseless round or cycle, in which animal and plant share and help one another.

**WHAT IS A MIRAGE?**

A mirage is an appearance, low down in the sky near the horizon, of something that is not there. It occurs especially in certain conditions of the air when it is very hot, and most of us have heard how it deceives travellers in the deserts of hot countries. Sometimes in deserts there are spots called oases, where there is water, and, since there is water, there are also green trees and shade. And we are told that sometimes travellers think they are coming to an oasis only a few miles away, where they can get water and shade; and then, as they travel on, it disappears. A great explorer once "discovered" and named a mountain which did not exist, but which he had seen as a vision, or mirage. So we apply the word mirage

sometimes to a thing that looks real and pleasant from a distance, but which, as we get nearer to it, vanishes altogether. I am afraid we all see mirages of this kind at some time in our lives.

**WHAT CAUSES THE MIRAGE?**

The true mirage is not an appearance in the sky due to nothing at all, and it is not purely imagination on the part of those who see it. When the traveller sees an oasis in the desert, and it fades and deceives him, what he has seen is the image of a real oasis, much farther on, below the horizon. The light from the real oasis has been somehow reflected from a layer of air, and so the traveller sees it—as if there were a huge mirror in the sky placed at such an angle that it threw a view of the oasis to the traveller's eyes.

It must be that there are layers of air of very different temperatures, and therefore of very different density, and whenever light passes from one thing into another of different density, part of it does not go on, but is reflected. Appearances due to a similar cause are often seen at sea. A ship near the horizon may seem to have another ship, exactly like itself, perched upside down upon it, the masts of the one beginning where those of the other stop.

**HOW DOES THE VOICE GET INTO THE GRAMOPHONE?**

A gramophone is a special kind of phonograph, and the phonograph was invented by Edison. The two words are really the same, only the two parts of them are turned the other way. *Gram* or *graph* means "write," and *phone* means "sound." The voice, or whatever the sound is that the phonograph records, writes itself on a plate or a cylinder. What happens is that a small needle is shaken and made to write by the sound, being connected with a drum against which the sound-waves strike. When the instrument is played, the marks on the record are followed by a needle, much the same as that which made them, and the needle, being shaken as it follows the tracing, shakes another drum, and that shakes the air—or produces sound-waves—in exactly the same way as when the record was made.

If we look closely at one of these marvellous machines when it is being played, we can then see for ourselves the faint, irregular line on the record,

the needle following it, and the drum to which the needle is fixed, and we shall hear the sound-waves made by the drum as the needle shakes it. People who study sound, especially the sound-waves of the various letters we use, photograph these records and enlarge the photographs, and so can study exactly the shape of the sound-waves that make a and e and the other vowels.

**WHY DOES NOT THE MOON MAKE WAVES ON RIVERS AS WELL AS ON SEAS?**

The moon does not exactly make the waves of the sea, but it draws the sea after it as the earth spins, and as the sea usually moves in waves, due to the wind, so the tides rise and fall in waves. This is a wise question, for we might think that the water of a river ought to behave as the water of the sea does, and there is no doubt that water everywhere, and every liquid surface, and even the solid crust of the earth, are affected by the moon.

But the sea is deep, and so there is enough water to be heaped up under the pull of the moon, and to make visible tides. The water of a river is very shallow in comparison with the sea, but near the mouth of most rivers, where they communicate freely with the sea, the great tidal stream of water flows up and down the river as the tide flows and ebbs; and so the influence of the tides can be seen in these tidal rivers, perhaps many miles up from the sea. Thus, the tides can be noticed in the Hudson in New York, and in such cases the moon does "make waves," or, rather, an inflow and outflow of water, in rivers.

**WHY DO TELEGRAPH WIRES SEEM TO GO UP & DOWN WHEN WE ARE IN A TRAIN?**

They seem to go up and down because they do go up and down! That is to say, the telegraph wires "hang," and are not straight like a piece of wood. We see this well from a train because it carries the eye along very quickly at the same level, so that even though the curve of the wires is not great, we can notice it. The earth is pulling on the wires, as it pulls on all matter everywhere. This is another way of saying that they have weight, and this makes them sag, or drop a little, between the telegraph posts. Metal wires are, of course, quite heavy, and they "give" under their own weight. But if you have flown a kite to any height, you must

have noticed the same thing even with a light material like rope or string. When the kite flies high, the string does not rise in a straight line from your hand to the kite, but curves in the air—always downwards under the influence of the earth's pull—or, as we say, by its own weight.

**WHAT IS PAIN, AND WHY DOES IT HURT?**

Not the wisest man can answer this question, but we know some things about it. We know that certain nerves run to the skin, and that when they are excited the result is pain—just as when the eye nerve is excited the result is sight. We know that when these nerves are damaged and cannot work, the skin cannot feel pain. Also, we know that when any other nerves are excited too intensely the result is painful. Loud music may be very pleasant, but there is a point beyond which it quite suddenly becomes painful. Similarly, a bright light may be beautiful and pleasant, but beyond a certain point it suddenly becomes painful.

No one, however, has any idea what happens in the nerve or in the nerve-cells when this change comes, though it has lately been thought that when a nerve is very highly excited it changes in shape. This, however, does not tell us in the least why pain should go with it. No one could explain what pain was to a person who had never felt it, except by causing him pain. Similarly, you cannot describe sight to a person born blind. Words cannot describe these things, except to people who know them by experience already.

**WHY IS OUR SHADOW BIGGER THAN OURSELVES?**

Our shadow is not always bigger than ourselves. It depends entirely on the height of the sun above the horizon. When the sun is high, our shadow is much shorter than we are; if the sun were right above us, in the part of the sky which is called the zenith, or highest point, then our shadow would be just a tiny mark round our feet. But the lower the sun falls, the more do its rays slant as they approach the ground, and so our bodies may throw shadows many feet in length. If we always think of light-rays as travelling *outwards* in straight lines in all directions—as you will easily understand if you consider a candle or a gas-jet—we shall see that the shadow of a thing will be bigger the farther away

it is thrown. Sometimes we can notice this in the case of our own bodies. When the sun is low among the mountains, we may be standing on one peak or ridge and throw a shadow which does not strike the ground at our feet, but crosses a valley and strikes the side of another mountain, such as we see in the picture on page 1724. Such shadows may be enormous, and even terrifying. When the earth gets between the moon and the sun, it throws a shadow which we call an eclipse of the moon. This shadow falls upon the moon and darkens it to our view. You can test the rule about the size of shadows at any time with a pencil and a candle, or with your hand near the ground on a tablecloth in sunshine.

**CAN WE SEE LIGHT AND DARKNESS ANYWHERE AT THE SAME TIME?**

If we could stand on the moon, we should perhaps be able to do this, for the moon has nothing to scatter the sun's light, and so the shadow of night would have quite a sharp edge. But the earth has the atmosphere, which is always scattering and reflecting the light that passes through it, so that the advancing shadow never has a sharp edge. This is why we have twilight. The sun has set, it is below the horizon, and if there were no atmosphere we should be in total darkness the moment the sun set; but the air reflects the light from above down upon us for a time.

Of course, the higher part of the air can see round the corner of the earth, so to speak. The sun's rays still fall upon it, though we are cut off from them; and it turns them to us so long as it gets any. Gradually, as the sun sinks lower, its rays strike higher and higher in the air above us, until at last they fail altogether, and twilight has passed into night. In some parts of the world, owing to the state of the air, the air reflects much less light downwards, and in those places we say that night falls very suddenly. But nowhere can we see the advancing shadow of night. How impressive it would be if we could!

**WHY IS ICE SLIPPERY?**

We say that a thing is slippery when its resistance to motion along its surface is very slight. This resistance, or friction, is a thing we rather dislike—especially in machinery; but we should find things very inconvenient without it. Walking and running would be

utterly impossible without friction, and even standing still would require the most perfect balancing. When we walk on ice, we get as much friction as possible from our boots. If we tried to walk on boots soled with ice, or covered with an even layer of oil, we could not walk at all, for there would be practically no friction to keep our feet where we planted them. The absence of friction in the case of ice depends upon its beautifully even, crystalline structure.

The molecules of water are held together very smoothly and evenly, and this is especially so if the ice formed when there were no currents in the water and no wind, so that its surface was very smooth when it became frozen. Various substances, like oil and wax and varnish, will give an extremely smooth surface even to things like wood, and so render them almost free from friction. When we skate, we use a metal surface as smooth as possible, both on the flat and on its two edges, and though there is no small amount of friction when the blade cuts a line in the ice, yet it is not enough to prevent us from sliding on the skate-edge for many yards at a time.

**WHEN A LEAF IS PLUCKED FROM A TREE, DOES IT HURT THE TREE?**

The word *hurt* may mean *injure*, or it may mean *pain*. The plucking of a leaf does not pain the tree, because a tree cannot feel anything that we should call pain. But when a living green leaf is plucked from a tree, the living cells where the break is made must feel something, only it is a very faint feeling; and, of course, we must not think that it is in the least like pain, or that it is possible to be cruel to a tree, as one might be cruel to a cat. When a dead leaf falls from a tree, the tree cannot feel anything, for a layer of something like cork has been formed at the base of the leaf, and so the leaf is really no longer part of the living tree.

If *hurt* means injure or harm, that is really another question. The leaf exists for the life of the tree; it serves to feed the tree; it breathes for the tree, and helps to remove from it the water which the roots have sucked up. Of course, a tree has many leaves, and so to pluck one cannot hurt the tree much; but if we were to strip all the leaves off a tree in the spring, we should soon find that that harmed

the tree. But when the wind blows the leaves off a tree in autumn, the tree is not harmed, for it has already taken what it wants out of the leaves, and has no use for leaves until the next year.

**WHY DOES NOT THE SUN DRAW UP THE SALT FROM THE SEA?**

The different elements and compounds differ naturally and permanently from each other in the extent to which they are *volatile*, or fly-able. Some, such as the gaseous elements, and a liquid element like bromine, or a solid one like iodine, are very volatile; so are many compounds, such as water. They readily give themselves off as gases to the air if the conditions are at all favourable. But many other elements and compounds can only be volatilised, as we say, with extreme difficulty. Carbon, for instance, is one of the least volatile of all substances, yet under the tremendous heat of the electric arc-lamp, or in the hot stars, carbon can be made volatile.

The salts of the sea are among the least volatile of compounds. If heat enough were applied to make them volatile, they would probably decompose, or be broken up into their elements, first. So the sun can evaporate, or *make into vapour*, only those things, such as water, which turn readily into vapour. It cannot bring nearly enough heat to bear on the salt of the sea for this purpose; and if it did, as we have said, the salt would probably break up rather than evaporate as salt, and would give off its elements as gases.

**WHAT IS A THUNDERBOLT?**

We know that lightning often strikes houses and trees, and even people. With lightning goes thunder, and long ago it was supposed that something, a "bolt," was actually thrown from the sky during a thunderstorm, and struck such things as trees. The thing that men thought was thrown was called a "thunderbolt." In those days people thought that God threw thunderbolts and so destroyed those with whom He was angry. The Romans, too, taught that the thunderbolt was the bolt of Jove, or Jupiter, who was their chief god. But we know now that there is simply no such thing as a thunderbolt, and the damage that it was supposed to do, is really due to the passage of an electric current from the air to the earth, which damages anything it passes through.

**WHY DOES THE SUN MAKE THE WET SANDS STEAM AT THE SEASIDE?**

I am sure, said the Wise Man, that the boy or girl who asked this question could answer it. I think so, partly because it is an easy question, but specially because anyone who carefully observes or notices things should be able in time to explain them. It is the very first thing in the study of the world, or of anything, to observe the facts carefully. Many people do not notice at all a thing like this, or, if they do, they forget about it. They cannot learn much until they learn to notice. The answer to this question is, that, when the sun comes out, it raises the temperature of the air so that it is able to hold more water in it, and it also raises the temperature of the sands and the cliffs and the water lying on them, so that the water passes into the air in the form of steam. This passage of water from air to earth, and back again, is always going on, but we seldom see it in this plain way.

**WHY DOES IT RAIN SO MUCH IN SCOTLAND?**

This is another of those very difficult questions about the weather which no one can fully answer yet. One of the great causes of rain is the existence of much water for the sun to draw up, and so any island is far more rainy than the interior of a continent, such as the Sahara Desert. That applies to the whole of the British Isles. But the rain that falls in the islands is principally brought from the greatest expanse of water near them, which is the Atlantic Ocean. So it is chiefly the "warm, wet western wind" that brings the rain. It deposits the rain most where it is most cooled, and as Scotland is farther north than England, it is colder; and so its climate condenses more rain than the climate of England does.

Scotland also has a very broken west coast, so that the water of the sea comes far up into the land, as in the case of the Clyde, round which there is more rain than anywhere else in Scotland or in England. The west coast of Ireland is very rainy, too, and I think that poor Ireland catches part of the rain which would otherwise fall on England. Scotland, again, is very hilly and mountainous, and we know that air is cooled in rising over hills, and so deposits much of its moisture as rain. Of course, the east coast of Scotland—for

instance, such a county as Berwickshire, which is also rather flat—is far drier than the west, for when the west wind reaches it, it has already spent most of its moisture farther west. These are some reasons why Scotland is more rainy than England, but there may be more.

**WHY DOES A PIN GET HOT IF RUBBED AGAINST A STONE?**

All rubbing, or friction, produces heat. If you had a really delicate thermometer, you could easily prove that paper and india-rubber and the air around them all get hotter when you rub out something you have written. The motion that starts the rubbing is changed into the special kind of invisible motion called heat. In the case of a pin rubbed against a stone, we notice the heat-effect of friction particularly well. This is, first, because the pin has a narrow edge and a sharp point, which is very much stopped by the uneven surface of the stone; and, second, because the pin is made of metal, and all metals are very good conductors of heat. So the heat runs up the pin very easily and quickly, just as it runs up a poker held in the fire, and that is why we feel it so distinctly.

**WHY DOES NOT SNOW FREEZE UP FLOWERS?**

Sometimes snow does freeze up flowers, but only when the earth itself has become very cold, so that the soil-water has been frozen. Even then, plants do not always die, by any means. Sometimes they seem merely to stop living, as it were, for a little, and then start again. But plants and flowers are protected against cold, if they are accustomed to live in cold places, by the fact that they produce heat within themselves.

We think, perhaps, that only warm-blooded creatures like ourselves produce heat, that a frog does not, and still less a plant. But every living thing breathes, all breathing is burning, and all burning produces heat. Therefore, every living thing produces heat, and plants are no exception. In quite a number of cases now, men have succeeded in measuring the heat produced by plants, and they have shown that many plants always maintain themselves at a temperature hotter than that of the air around them. Plants vary widely in their power of resisting cold. The vine will not stand the cold in which an Alpine plant thrives; but where

plants do resist cold, it is because of their power to produce heat, and probably also a power of keeping water liquid inside their living cells, though it would freeze at the same temperature outside.

**WHY WILL INDIA-RUBBER RUB OUT PENCIL AND A CERTAIN SORT RUB OUT INK?**

When india-rubber rubs out pencil-marks on paper, or "ink-eraser" rubs out ink-marks on paper, or pumice-stone rubs out ink-stains on our skin, what happens is really the same in every case. It is the rubbing, or the friction, that actually rubs away the outer layers of the paper or the skin, and so removes anything that they may contain. Soft india-rubber rubs away only the surface-layer of paper, but that is enough for pencil-marks, which only deposit a thin layer of carbon on the surface of the paper. A harder rubber—or a knife-edge, which acts in exactly the same way—will rub off a thicker layer of paper, and so will remove ink-marks, which penetrate much more deeply into paper, being made by a liquid. Pumice-stone is hardest of all, and when we rub our fingers with it, it removes ink-stains, which are deeply absorbed by our outer skin, as india-rubber could never do.

**WHY DOES NOT THE EARTH GET IN THE WAY OF OTHER WORLDS?**

The earth is kept in its course by the sun's attraction, we know, and so are the other planets. As none of them can leave their own path, they do not get in each other's way. But if any other body came flying into the solar system, it and the earth or one of the other planets *would* get in each other's way. This does sometimes actually happen. Comets, which are in a sense separate worlds, though, of course, very small ones, sometimes fly into the solar system, attracted by the sun, and are carried out of their course by one or other of the planets.

Jupiter is the giant planet, and is farther away from the sun than the earth, so it is usually Jupiter and a comet that get in each other's way. Jupiter may have caught several comets in this fashion, or, if it has not actually caught them, it has altered their path, as your path is altered when someone gets in your way. It is very likely that the moon of Jupiter which was last discovered, and perhaps some of the

others, were caught in this way. They were probably little independent worlds, until they ventured too near the giant planet, and were caught by him, and compelled to circle round him as all his moons now do. It is just possible that our moon was caught in this manner, because it got in the earth's way; but it is much more likely that the moon was once part of the earth.

**WHY DOES WATER CRACKLE WHEN A RED-HOT POKER IS PUT IN IT?**

The crackling noise is due to the bursting of little bubbles of something. A bubble is a closed envelope of fluid containing a gas of some kind. Usually this gas is rather compressed, and as it expands it stretches and makes thin the liquid envelope until it bursts. Then the gas escapes and expands very suddenly, and makes a little explosion, starting the waves in the air which we hear and call sound. It only remains, then, to find out what makes the bubbles in the water. A cold poker will not make them.

Therefore, it is not the iron of the poker, nor the shape of the poker, that makes them, but its heat. With everything else but its heat, the poker will not make bubbles. It is not difficult to see how the heat does this. It rapidly turns the water near it into gas, and this gaseous water, and also the air dissolved in the water, form bubbles of hot, compressed gas surrounded by an envelope of liquid water. These are quickly made and quickly broken, and in breaking they make the crackling noise that we hear.

**WHAT MAKES THE NOISE WHEN A BAG BURSTS?**

The noise of a bursting bag is due to the same cause as the crackling of a bubble or any other kind of explosion. A bag is really a kind of bubble, only the envelope containing the gas is not made of liquid, but of paper. Also, the gas is not under pressure, for it is not hot, and does not tend to expand and make the bag-bubble burst. So we apply the pressure from without, which comes to the same thing, by striking the bag between our hands, and so it bursts as a bubble bursts, and with the same result—the starting of the air-wave that we call sound. It is a noise, and not a musical note, because the air escapes irregularly, "anyhow,"



from the bag, and so starts an irregular air-wave, and not a regular wave consisting of even vibrations at a fixed rate. If it were such a wave, we should hear a musical note. The air escapes from the bag of bagpipes, and makes a more or less musical note because, as it passes out, it strikes something which vibrates regularly and so throws the air into regular waves.

**WHAT MAKES THE SOUND IN THE ORGAN?**

When the organist puts his finger on a key, he allows air to enter the pipe of the organ that corresponds to the key he touches. The air is thrown into vibration in the pipe, and this spreads in all directions through the air and makes the sound we hear. It is really a vibrating column of air that produces the sound, while in the piano, or the violin, it is a vibrating string.

So the organ is really a huge wind instrument, as the others are stringed instruments. The rate at which the column of air vibrates decides the note we hear, and depends on the length of the column, which, of course, depends on the length of the pipe. Thus, a pipe 32 feet long will hold a column of air that vibrates just half as fast as the column in a pipe 16 feet long, and the note of the longer pipe will be exactly an octave below the other. It would not do if there were nothing but a plain pipe, because, of course, the air would simply rush through it with a hiss. At one end of the pipe there must be something to throw it into vibration, a "tongue," which may be made of various materials and shapes according to the particular *quality* of the note we want. But the *pitch* of the note is decided by the length of the pipe.

**WHY SHOULD ANYTHING LIGHTER THAN WATER FLOAT?**

It is a law of Nature that lighter things pass above heavier things—just as the dregs of a liquid fall to the bottom, being the heaviest part of it, and the scum rises to the top, being the lightest part of it. We may make a kind of explanation of this by saying that the attraction of the earth is greater for the heavier thing, and so it passes nearer to the earth; while the attraction of the earth is less for the lighter thing, which accordingly does not get so near to the earth. The law is the same for all liquids and for all gases. A lighter gas

floats on a heavier gas, and a lighter liquid on a heavier liquid. Also we find that when anything floats in water, the weight of the volume of water which it pushes out of its place is equal to the weight of the floating thing. This is the most important law of floating. If the mass of water displaced by a thing is lighter than that thing, then it must sink; and if a thing floats, the amount of it under the water is such as to displace a quantity of water equal in weight to the whole thing.

**WHAT DOES "EUREKA" MEAN?**

This famous word means "I have found it," and the story goes that it was used by one of the greatest men of antiquity, Archimedes, who discovered the law named in the last question. The king's crown had been in the hands of the goldsmith, who was suspected of having replaced some of the gold by some other metal; and Archimedes was set the task of finding whether this was so. He did it by putting the crown into his bath, and noticing how much the water rose; and he is said to have run out into the streets shouting "Eureka! Eureka!" And now, when we have found out something we have been searching for, we sometimes repeat his famous exclamation.

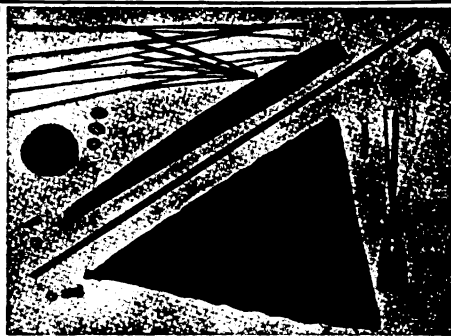
**WHY DOES THE OUTSIDE OF A CUP CONTAINING ICE CREAM GET WET?**

When we put ice cream in a cup, the cup becomes very cold. The air around it becomes cold, too. The reason is that the heat in the cup and in the air are pouring into the ice cream, and what they lose it gains. Now, the air has in it a good deal of water-gas, or water-vapour; but when it is cooled this water-vapour cannot remain as vapour, but turns into liquid water, which gathers on the outside of the cup. The wet on the cup is therefore dew, and it forms on the cup just as dew would form on the cup if, without any ice cream in it, you simply put it in the garden in the evening. The amount of water that air can hold gets less the cooler the air is, and so, whenever air is cooled, some of the water in it will be deposited upon the surface which is cooling the air. The heat of the air round the cup passes into the ice cream, and that, of course, is what melts it.

The next Questions are on page 3233.



Assyrian royal umbrella



The various parts that make up a modern umbrella



Hanway and his umbrella

## THE STORY OF THE UMBRELLA

THE first man to carry an umbrella about in London was Jonas Hanway, and a very bad time of it the people of London gave him. He was born in 1712, and, while still a young man, travelled as a merchant in Persia and Russia and other lands. He travelled into lands where his life and goods were in danger, but he had no fear. When he found how useful the umbrella was in those lands, he made up his mind to use it for his protection against the weather in England. So, when he was thirty-eight years old, he opened the first umbrella ever carried by a man in a London street. He was the first *man* to walk with one, not the first *person*.

Before Hanway was born women had used umbrellas, but the umbrella was thought to be as feminine as the veil for the face is now; and that was one of the reasons why the stupid people of Hanway's day made fun of him. It was ridiculous, they said, for a man to carry about a woman's thing. So, while the more dignified people poked fun at him, boys pelted him with stale vegetables and bad eggs, and made his life a misery to him. Most of us would have preferred the rain to the storm of eggs and cabbages which the sight of the umbrella brought down upon the head of poor Jonas Hanway.

The owners of coaches plying for hire at that day said the umbrella would ruin their trade. Other people thought that the umbrella was an

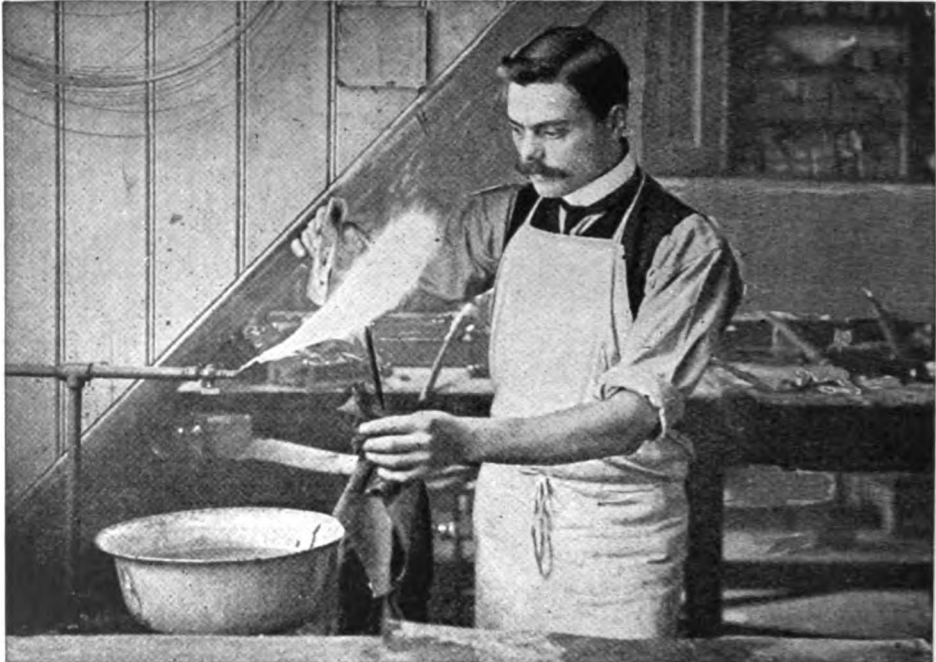
CONTINUED FROM 3044

insult to God. Unless the rain were intended to wet people, they said, it would not be sent; certainly nobody had a right to keep off the rain with an umbrella. But Jonas went on his way with his stout umbrella over his head, never heeding the eggs and cabbages and dirty water flung over him from the houses. "It will soon be popular," he used to say. But he was wrong.

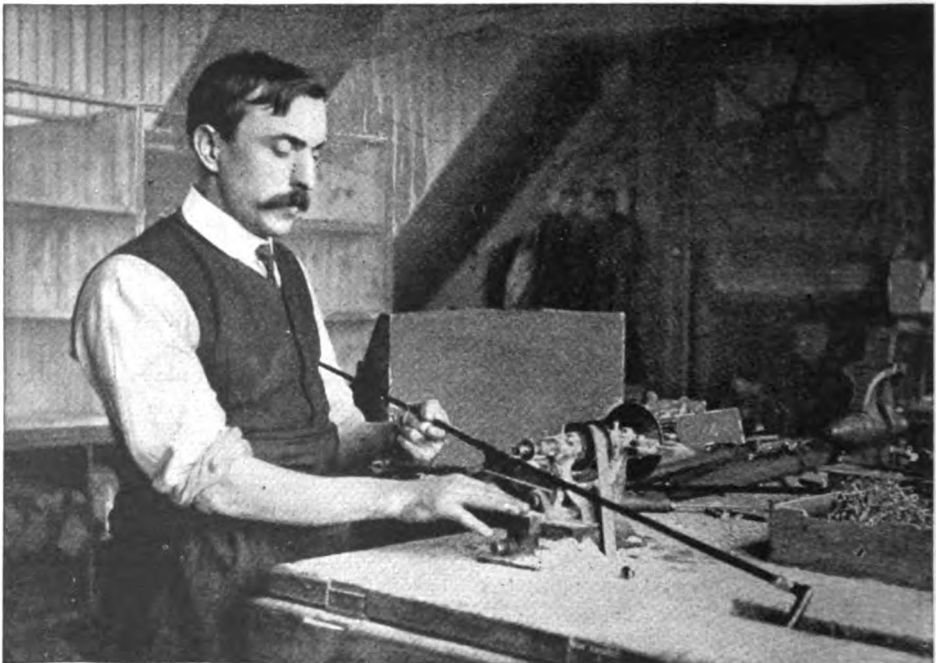
It took thirty years for the use of the umbrella to become at all common. The owners of inns and coffee-houses would keep one umbrella, which their customers could borrow in going to and from their carriages; and there would be one umbrella in use at a large private house. When their use became more common, it was said that there were three classes of people, the class who could afford a carriage and therefore did not need an umbrella; the people who could afford an umbrella but not a carriage; and the people who were too poor to afford either.

We can see in our larger museums to-day carvings of a King of Assyria carrying an umbrella as he led his army forth, and that was 700 years before Jesus. Umbrellas had been used, too, in other countries centuries before Hanway's time, but they were brought into common use in England and afterwards in the United States by the man who was jeered at every time he raised one in London.

## THE BEGINNINGS OF AN UMBRELLA



An umbrella is made up of the many parts shown on page 3097. These are made in many towns, and are put together in factories, where each man and woman has a special work to do. Here we see the handle being cemented on to the stick of the umbrella, which the man is holding wrapped round with a piece of cloth. He melts the cement in the flame, applies it to the end of the stick, puts on the handle, and cools it in a basin of water.

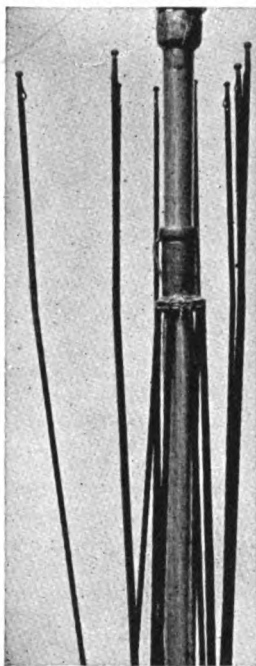


The sticks are tied together in bundles of a dozen and sent to the mounter, who puts on a collar, or metal band, round the handle and polishes the bright parts. The hand-spring that is pressed on opening an umbrella, and the top spring that keeps it open, have next to be put in. Here we see a workman cutting grooves on the stick for the springs. If these are out of position only the fraction of an inch, the umbrella will not work properly.

## THE SPRINGS AND RIBS BEING FITTED



The hand-spring, held by pliers, is here being fitted into the slot in the stick. If we open our umbrella, we shall see exactly how the springs act. A little "stopper," like a small drawing-pin, is then hammered into the stick to prevent the runner, or metal tube, going too far up the stick; which is now ready for the frame



Every umbrella has eight ribs, each with a smaller one attached to it. These small ones are called stretchers, because they stretch open the umbrella, and after they have been riveted to the larger ribs, they have to be threaded together on wire and attached to the runner. The larger ribs, too, have to be threaded together round the notch near the top of the stick, as we see the man doing in the left-hand picture. These ribs fit into eight nicks, or slots. The centre picture shows the ribs and stretchers fitted to the stick. Women now take the umbrella in hand, and in the right-hand picture we see the rosette being sewn round the top of the runner.



## PUTTING ON THE SILK COVERING



Here eight little oval pieces of material, called preventers, are being sewn to the joints in the ribs to prevent the jointed parts from wearing through the cover. Then the skeleton is ready to be covered. Eight triangles of the stuff are cut out, either with shears or by passing a sharp knife round a pattern.



The eight triangles, or gores, of silk are sewn together on a sewing-machine worked by electricity, and the edge of the cover is hemmed round. In this picture the woman has just placed a round cap of glazed cotton over the ends of the ribs, and is about to put the cover over the stick in readiness for fastening to the ribs.

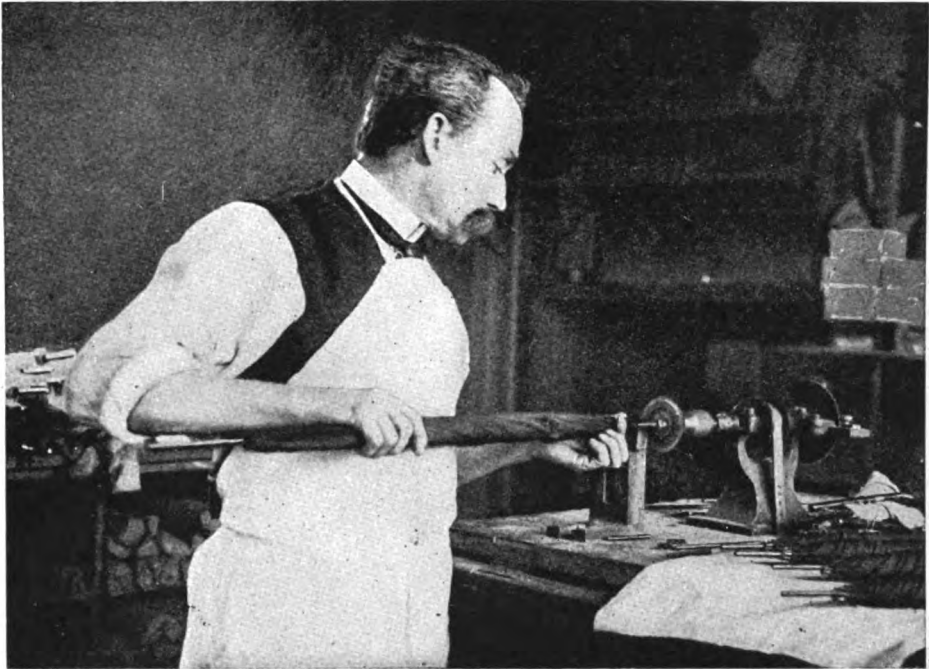


A woman now sews the cover to the tips of the ribs, where there are small eyes, or holes. That is called "tipping." Here she is "bracing," or sewing the seams to the ribs at intervals. The cover is then ready for ironing, after which the elastic band is sewn on.



The umbrella is now ready to be rolled. The tips of the ribs are held in the right hand, and the thumb of the left hand is placed in the middle of each gore in turn and pressed round. Then the right hand twists the stick while the left hand rolls the cover towards the handle.

## THE UMBRELLA FINISHED, READY FOR USE



We have already seen the handle fitted to an umbrella with a wooden stick. If, however, the umbrella has a metal tube instead of a wooden stick, as is very generally the case nowadays, it is at this stage that the handle end of the tube is cut to the proper length as shown, in this picture, and the handle is fixed in position. A sledge, or metal band, prevents the handle from splitting. With a metal tube, the umbrella rolls up very small.



The umbrella has still to be finished if it has a wooden stick. The finisher places the umbrella under his left arm and, with a long, sharp blade, points the end of the stick. A metal cap is then fitted to protect the gores of the cover where they join, the ferrule is riveted on the end of the stick, and the umbrella is ready for despatch to the shop where we buy it. In some factories more of the work is done by machinery.



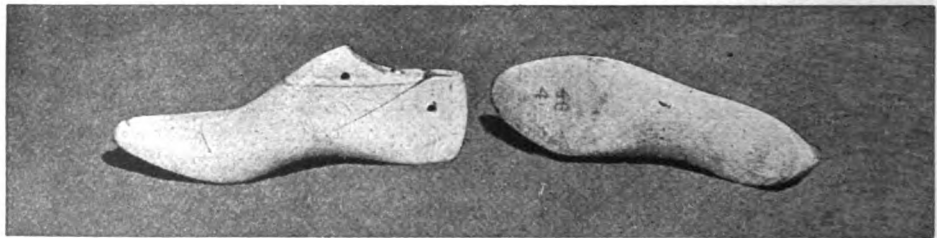
# HOW A PAIR OF SHOES IS MADE



The shoemaker finds the breadth of our foot with a tape measure, and the length is taken with a curious rule called a size-stick, like the one shown lying on the floor here.



He also measures round the instep, ankle, and leg, and then we have to stand upon a piece of paper while he marks round, with a pencil, the outline of our foot.



From these measurements the lasts are carefully shaped. They are made of wood, and each is in two pieces, so that it may be easily drawn out of the finished boot. Iron lasts are used for machine-made shoes as wood soon wears.



Now all is ready for the making of our shoes. First of all the uppers are cut out of a skin of leather by a man called a clicker, who uses a small sharp knife.



Then, after being fitted together and stuck with paste, the different parts of the uppers are sewn together by means of a sewing-machine, with needles made specially strong.

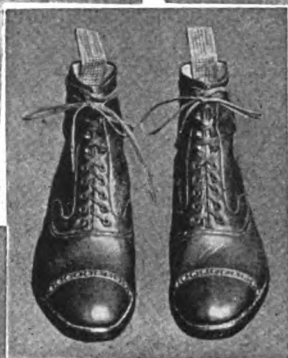
## BUILDING UP A PAIR OF BOOTS



The upper is next lasted, or fitted round the last. The leather is pulled over the sole with a little pair of pincers, and tacked to the inner sole.



Then the welt, a narrow strap of leather to which the sole is fastened, is sewn on. There is no welt in machine-made shoes as they are made differently.



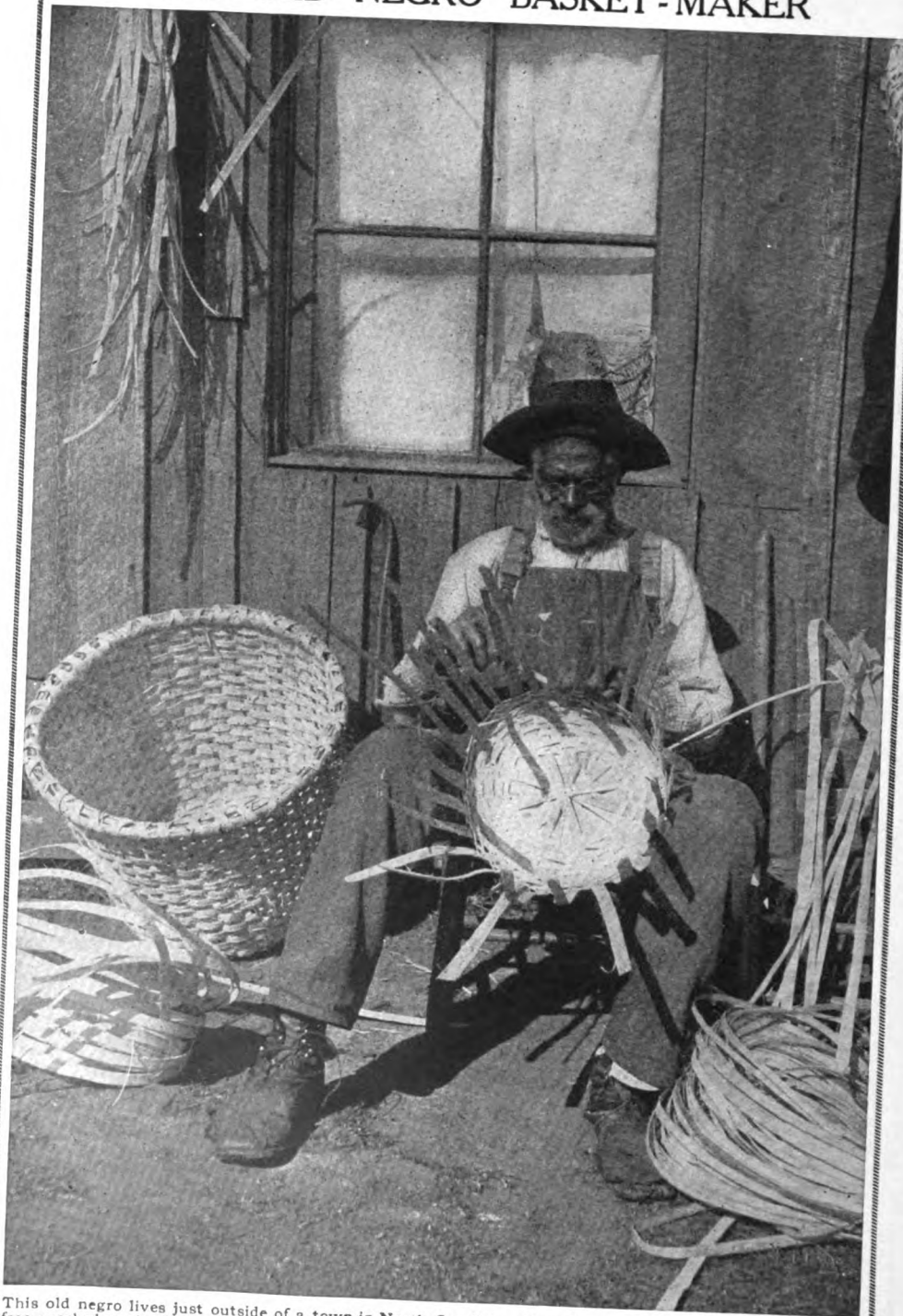
Now the shoe is soled. Holding it in his lap, the man makes holes with an awl through insole, upper, welt, and sole, and sews all together with waxed thread.



Finally, the heels are built up of layers of leather, the soles and heels are blackened and polished, the lasts are drawn out, laces are put in, and the shoes are ready.

THE NEXT PICTURES OF FAMILIAR THINGS ARE ON PAGE 3177

## THE OLD NEGRO BASKET-MAKER



This old negro lives just outside of a town in North Carolina. Once he was a slave, and, after he was set free, worked on the farm of the former owner, until the latter's death. By accident he became a cripple but still makes a comfortable living by weaving baskets from strips of white oak wood. These baskets are used in the cotton fields and for many other purposes, as they are firm and strong and last a long time.

## HEROES OF PEACE

Oh, dream not helm or harness  
The sign of valour true;  
Peace hath higher tests of manhood  
Than battle ever knew.

— JOHN GREENLEAF WHITTIER.

THE word "hero" in the minds of boys and girls is generally associated with the dangers and turmoil of war. They hear the word and it brings before their minds visions of battlefields clouded with cannon smoke, of soldiers charging down upon the enemy, of officers leading their men into places where the fight is thickest. They think of Arnold von Winkelried, Switzerland's national hero, who forced a path for his comrades through the ranks of the opposing army by throwing his body upon the spears of the enemy; they remember the little peasant girl of France who led the armies of her king to victory and died at last a martyr at the stake; they thrill at the thought of those dauntless British soldiers in the Crimean War who, in response to a mistaken order, laid down their lives in unquestioning obedience to duty in the "Charge of the Light Brigade;" or they look back with a glow of patriotism upon the men who, bootless and half-famished, faced the white winter at Valley Forge without a murmur of complaint.

"Ah, those were heroes!" one of our boys exclaims with breathless enthusiasm. And yet, O boys and girls, there have been heroes who have never been upon a battlefield, or heard the thunder of a cannonade, — quiet men whose names have never been enrolled on the pages of history — yet whose deeds have been just as truly heroic as those of Joan of Arc or the men who fought so bravely at Bunker Hill or Gettysburg.

Andrew Carnegie, of whose many philanthropies you have probably heard, recognised the fact that there are heroes of peace just as there are heroes of war.

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For many years, Mr. Carnegie has been engaged in furthering the interests of peace. Some time ago, he made a gift of a large sum of money to build a Peace Palace at The Hague, and only lately he gave ten million dollars to be used in any way necessary to avert war between the nations of the world.

In 1904 Andrew Carnegie placed five million dollars in the hands of a Commission to establish a "Carnegie Hero Fund," having for its purpose:

First, "To place those following peaceful vocations, who have been injured in heroic effort to save human life, in somewhat better pecuniary positions than before, until again able to work." (And in case of death to provide for the widow and children or other dependents.)

Second, "No grant is to be continued unless it is soberly and properly used, and the recipients remain respectable, well behaved members of the community, but the heroes and heroines are to be given a fair trial, no matter what their antecedents. Heroes deserve pardon and a fresh start."

Third, "A medal shall be given to the hero, or widow, or next of kin, which shall recite the heroic deed it commemorates, that descendants may know and be proud of their descent."

Mr. Carnegie also provided, that as "many cities provide pensions and some give rewards for acts of heroism," care must be taken not "to deaden or interfere with public and municipal appreciation of faithful and heroic service," and to see that the "generosity of the community" is given full scope.

"The field embraced by the Fund," says Mr. Carnegie, "is the United

States of America, the Dominion of Canada, the Colony of Newfoundland, and the waters thereof. The sea is the scene of many heroic acts — no action more heroic than that of doctors and nurses volunteering their services in the case of epidemics. Railroad employees are remarkable for heroism. All these and similar cases are embraced. Wherever heroism is displayed by man or woman in saving human life, the Fund applies. I do not expect to stimulate or create heroism by this fund, knowing well that heroic action is impulsive, but I do believe that if the hero is injured in his bold attempt to save his fellows he and those dependent on him should not suffer pecuniarily thereby."

Acts of heroism are brought to the notice of the Commission by relatives and friends, or witnesses of the deed, or by newspaper reports. Each year the Commission publishes a booklet giving the names of those who, during the past year, have done some noble act, and we should read one of these pamphlets to realise how many true heroes we have in our broad land.

Let me tell you the stories of some of those who have been rewarded for heroism by the Carnegie Hero Fund Commission.

### HEROES OF THE SURF

It was midwinter and the steamer Larchmont, with one hundred and seventy-five souls on board — men, women and children — was caught in a February gale off the shores of Block Island. The blinding storm of wind-driven sleet prevented the lights of the vessel from being seen and she was cut down in the night by a large schooner.

As the Larchmont slowly settled, thirty of the passengers and half a dozen of the crew gathered on the hurricane deck, the highest part of the vessel. When the steamer went down, the hurricane deck with its human freight was ripped from the hull by the wind and tossed into the raging sea. The temperature was rapidly falling below zero and the raging icy waves swept over the huddled group on the raft until at last only eight exhausted half-frozen bodies clung grimly to the wreckage.

The next morning, news of the Larchmont disaster was cabled to Old Harbour village from the mainland and Captain John W. Smith with seven other daring fishermen set out in the violence of the storm to look for the survivors. For hours, his little boat, The Elsie, fought its way into the ocean, until her decks and rigging were covered with ice from the seas that swept over the bow.

At ten o'clock they sighted the raft and saw that its occupants were feebly signalling for help. Try as she would, The Elsie could not get near the raft. At last four of the fishermen climbed into the dory that The Elsie was dragging in tow, and though drenched by the icy spray until they were numb, they fought their way to the raft and lifted into the dory the eight scarcely living forms, whose clothing had frozen upon them.

After two more awful hours, The Elsie reached land with everyone on board almost helpless from the cold. One of the rescued died from the exposure of that horrible night and all the crew of The Elsie were frost-bitten, though none was permanently disabled.

Each of the fishermen who had engaged in the rescue of the survivors of the Larchmont was awarded a gold medal by the Carnegie Hero Commission, and the education of their children was provided for. Two who had no children received each \$1,000 in trust.

Another deed almost as noteworthy as this was accomplished by the young master of the schooner Alberta, Mark Castro, with his crew of five fishermen and his cook, who went out in a furious sea to the rescue of the steamer Cherokee, which had been driven on to the Brigantine Shoals off Atlantic City. Captain Castro succeeded in safely transferring fifty-two persons from the sinking Cherokee to his own boat, although two of his dories were swamped before the rescue was effected.

Captain Castro was awarded \$6,500 by the Carnegie Hero Fund, \$5,000 for the education of his little son, and \$1,500 toward the liquidation of a mortgage on his property. Each of the six of his volunteer crew received a silver medal and \$500 in trust.

**A BRAVE GIRL**

A silver medal was given by the Fund to one young girl whose quick, brave thoughtfulness saved the life of a lad of sixteen.

A party of young people were rambling through the woods of Pennsylvania. The warm air rang with their chatter and laughter as they scattered here and there, picking flowers. Suddenly someone uttered a cry and the others came running from every direction to find one of the party, a boy, with a horrified expression on his face, holding his arm.

"What is it?" they all inquired anxiously.

As they spoke a low rattle was heard in the underbrush.

"Look out," shouted the boy, half beside himself, "The snake! He has bitten me!"

A chorus of shrieks and terrified exclamations broke from the girls while the boys killed the rattlesnake. In the meantime, one of the party, a brisk, capable young woman of twenty, had made the lad strip off his coat and had slit his shirt sleeve to the shoulder, where the two small marks of the rattler's fangs showed red and angry.

"What are you going to do?" asked one of the girls, half sobbing in her fear.

"Wait and see. Don't ask questions," returned the other shortly.

Bending over the boy, she applied her lips to the wound and sucked out the poison. Later they said it was only the girl's quick action that saved the boy's life — and she did it at the risk of her own, for she had a fever blister on her lip at the time and if the snake's venom had entered the sore it would probably have resulted in her death.

**A PENNSYLVANIA QUARRYMAN WHO BECAME A HERO**

Another scene of heroism took place in a Pennsylvania quarry. The men had just laid the blasting fuse and had scattered into places of safety while one of the workmen remained to light the powder. As the man bent over the fuse a sudden explosion of the powder stretched him senseless.

One of the labourers on the hillside saw the light creep slowly along the

fuse to where the powder mine was laid for the blasting. Rushing down the hill, the labourer dashed into the quarry and, catching hold of his insensible comrade, dragged him into a place of safety. He was just in time, for the hill shook under the explosion of the blast and the rock on which the man had lain insensible was a mass of splinters. This man who saved his fellow at the risk of his own life received the Carnegie Medal, and \$250 to be used as needed.

**QUICK-WITTED SCHOOL BOYS**

Boys often exhibit quick thought and resourcefulness in danger that is surprising. A little lad of five years old had been using a train trestle in Rich Hill, Missouri, as a dangerous playground. His foot caught between the cross-ties just as a train was approaching and the child was caught on the trestle, crying with terror.

Young Lyndon Phifer, a lad of thirteen, saw the little fellow's danger, and running swiftly out along the trestle, released his foot from between the rails and dropped him into a small stream over which the trestle passed. Then deftly letting himself over the side, Lyndon hung to the end of the cross-tie until the train had passed.

To this boy a bronze medal was awarded and \$2,000 was placed at his disposal for educational purposes.

Yes — a quick-witted plucky boy is deserving of the highest praise and can often take his place in the rank of the heroes as the tale of another brave act of a school boy will prove.

The scene was upon a winter lake. The ice had frozen over and was alive with gay skaters, skimming hither and thither over its surface. Suddenly someone uttered a cry: "Man fallen in!" and everyone rushed to the upper portion of the lake, where the ice had begun to thaw a little. They found that a boy had broken through the thin crust and was gasping in the icy water.

"Throw the fellow a plank, can't you!" shouted a man.

Some of the crowd dashed off to get a board. In the meantime one lad on the outskirts of the crowd had been rapidly removing his skates. He now



pushed his way to the front, and throwing himself flat on the thin, creaking ice, he wriggled out toward the water hole. He had his skate strap in his hand, and flung one end toward the struggling boy.

"Catch hold!" he commanded briefly.

The boy caught the strap. Suddenly a terrible ripping crack rent the ice and the rescuer was plunged into the icy water. Without losing his nerve, he struck out toward the drowning lad, and, grasping him firmly under his armpits, swam back with him through the chilly, numbing water. A dozen hands reached out to drag the young man and his now fainting burden to a place of safety. For hours the frightened lads worked over their rescued comrade and at last consciousness returned. The boy's life was saved, and saved through the cool, clear-headed grit of another lad, very little older than himself.

#### A BRAVE COACHMAN

Heroism is not confined to race or colour. A coloured coachman of Atlanta, Georgia, has received the bronze medal of the Carnegie Hero Fund for doing a brave act.

A runaway team hitched to a carriage containing a little child and a negro maid clashed down the streets of Atlanta. Foot-passengers rushed out of the way of the frightened, galloping horses, and the child and nurse clung together in the lurching landau, pale with terror. John B. Hill, a coloured coachman, saw their danger, and flinging himself in the path of the oncoming team, grabbed the bridle of one of the horses and, after being dragged some distance, managed to throw the horse to the ground. The horse fell upon the man, breaking the stitches of a wound due to a recent operation, but the child and the woman were saved from being dashed to pieces, and fortunately the brave coachman soon recovered.

#### HEROES OF MANY KINDS

And so we might go on in our talks of heroic deeds done by humble, unpretentious men and women. If you read the Carnegie Hero Fund Commission report you will be surprised at the many opportunities there are for self-forgot-

fulness and heroism in our daily lives.

You will read of a cripple who sprang in front of a fast train to save a child of six from death, and fell headlong from the track as the train roared by; of a blacksmith who, seeing his child bitten by a mad dog, and the creature dashing upon another child, attracted the animal to himself, and grabbing it, held it between his knees until it was shot; of a farmer who saved a negro from an infuriated bull by goading the animal with his pocket knife and would have been gored to death himself if his dog had not driven the brute away; of a young man of twenty who dropped into an unused cistern to rescue a child of two and held the child above water until a rope was lowered; of the fireman of an engine who snatched a little three-year-old youngster from death under an oncoming locomotive.

But all the heroes whom the Fund has honoured have not been as fortunate in their rescues as those about whom we have told. Among the records of the Commission we read here and there such notices as these:

"Peter Dean (Indian), aged twenty-five, deckhand, died helping to save Mrs. W. W. McCune and her little son from drowning, San Bernardino, California, July 11, 1907. The woman and boy fell from a disabled steamer into the Colorado River, at flood stage. Dean and another Indian threw a plank into the water and jumped in, swimming with it to the McCunes. The current was too strong to allow them to get to shore, and as the plank would not sustain the four, Dean, after going one quarter of a mile, left the plank, but failed to reach shore." And again —

"Francis G. Stewart, aged fifty, crossing watchman, died saving G. Gary Bercaw, aged six, from being run over by a train, Hammond, La., April 13, 1908. Jumping on to the track in the path of an oncoming train, Stewart threw the boy aside, but was himself run over and killed."

Truly of these we may say, "*Greater love hath no man than this, that he lay down his life for his friends*," the words engraved on the medal of the Carnegie Hero Fund.



## THE REAL VALUE OF FOODS

A MOST important question, which we commonly forget to think about at all, though it is far more important than any food fad, is the question: How and when to eat. We have already been careful to learn the part that is played by the teeth in proper eating. We know how important that is, not only for itself, but because it starts the great chain of digestion. We need say nothing more about that here, provided that we do not forget it. But though the use of the teeth is the first part of the answer to the question, there are other things to learn.

As we know, the value of what we eat entirely depends upon the proper happening of what we call digestion, and digestion entirely depends upon the brain, just as breathing does, or the beating of the heart. Now, there are certain states of the brain in which digestion simply cannot occur. The food passes on, but wherever it goes, no digestive juices are poured out to meet it. Perhaps even it is not allowed to pass on, but is returned by the stomach, and we are sick. The wise stomach, knowing its duty as one of the guardians of the body, says to the food: "I cannot digest you, the brain will not allow me to do so; and I know that if I pass you on without having done my share of

CONTINUED FROM 3048



the work, a great deal of harm will be done. In fact, there is no good to be got from you, but only harm, and therefore I must do my very unpleasant duty of throwing you out." I wonder whether,

when we are sick, we have ever thought of it from that point of view?

Now, our business is to learn what are those states of the brain and the mind in which eating can do us only harm. If we understand this question, we can protect ourselves by sensibly fasting for a little while. What is scarcely less important, we can protect other people at least to the extent that we shall not pester them to eat when they are not fit to eat. It is not wise to pester people in these states because the wise appetite fails on these occasions, and so a person who is not fit to digest is commonly protected from the bad effects which are bound to follow if food is put into his stomach. The pity is that we do not trust the appetite.

Now, if we were grown up, we should know what are the states of the brain and the mind in which one ought not to eat; or, at any rate, ought to eat only very lightly and carefully. But many children have no experience in themselves of the two great conditions, fatigue and worry, which arrest digestion, and

in which it is positively harmful to eat. But though happy children may never have known what these words really mean, yet some day they will grow up, and it is well that they should study this question beforehand.

#### HOW WORRY AND FEAR CAN SPOIL OUR APPETITES

A man may sit down to his breakfast, consisting of the usual things which he is accustomed to eat with delight, fragrant coffee, hot, crisp toast, fresh eggs, and so on. But the smell of every one of these things, this particular morning, makes him feel sick and horrible. He must get away from the room, or he will be ill; and yet that man is perfectly well, and just the same as he has always been, so far as anything that we can see is concerned. The explanation is that in the night he had to send for the doctor, and his mind is worried because he fears that he may lose the child he loves.

Now, that is an instance, and a terrible one, of the influence of worry, fear, anxiety, and such things upon the body. We have definite proof that in such cases the whole of the digestive processes of the body cease, and nothing can start them. We cannot learn too soon that our duty to ourselves or to others in such cases is to obey Nature. If it is necessary that food be taken, and that often comes to be the case with, for instance, a mother who is nursing a sick child, then the really wise doctor will pay as much attention to the feeding of the mother as to the feeding of the patient, and he will feed her on food that has been already digested outside the body. And so he may thus save his little patient.

Shakespeare, who had such a wonderful knowledge of things, understood this, and he puts into the mouth of the king, when he dismisses Wolsey, some words to the effect that Wolsey is to read the paper the king hands him, which contains his dismissal, and then to go and eat his breakfast, *if he can*.

#### THE TIRED BRAIN THAT MAKES EATING HARMFUL FOR US

Now, there is another state of the brain in which it is unwise to eat, because digestion is made impossible. That state is tiredness, or fatigue. It has been proved that when a person is tired, this is mainly because certain

poisons, which he has himself made, are in his blood. Perhaps they have been made in his muscles, for he may have been working hard with his limbs; but no matter where they have been made, these poisons are carried by his blood to his brain, and they produce in it the state which we call fatigue or tiredness. Now, such a brain cannot digest. It is possible to swallow various kinds of food when one is very tired, but the chances are high that they will only do harm. The remedy for fatigue is rest. A person who is desperately tired is not suffering from lack of food, he is not starved, which is quite a different thing; if he were starved, the remedy would be food, but the remedy for fatigue is rest. In a little time the body will get rid of these poisons, and then the man's appetite will return, and with it his power of digestion.

For several years past there has been in various parts of the world a sort of craze for long-distance racing. Now, our business here is the study of the body, and long-distance running is full of interesting lessons about the human body.

#### RUNNING AND GAMES, AND WHAT THEY TEACH US ABOUT THE BODY

It is, of course, an experiment, and one of a very interesting kind, because in some ways it is a very natural experiment. Running is a thing for which the body is well fitted in many ways, and the very fact that children are so fond of running about teaches us that we can probably learn something very useful about the human body from running.

It would be easy to write a long and interesting book about running and games and athletic sports, and what they teach us about the body and the mind of human beings. But here we want to speak only about the question we are discussing—that is, the effect of tiredness on digestion. We were all interested in the famous Marathon race that was run in London in 1908, because several countries were competing, including our own, and some of us were particularly interested because we expected that the different sets of runners would have different theories about how to take care of themselves during a 26-mile race on a hot day. Now, when a man is running a race like that, for much honour and glory, he is to a

certain extent worried and anxious, and in time, of course, the body becomes fatigued. Such a race is really a fatigue test. The man who gets tired last gets home first—apart from questions of judgment in running, and so on.

### WHY WE SHOULD NOT EAT WHEN WE ARE TIRED

Now, those who study the body know that when there is both anxiety and fatigue, it is no time for eating. By all means drink water, which requires no digestion, and helps to flush the fatigue poisons out of the body, but do not let us make the absurd mistake of forcing ourselves to eat. The heart lies next to part of the stomach, and everything that disturbs the stomach will disturb the heart, and if the heart goes wrong there is an end to our running.

Well, now, what happened in the Marathon race? It is very interesting to know, because on the average the same thing will always happen, and must always happen. After inquiry, which has been made very carefully, because an experiment like this is of great importance for science, we find that the facts are that the first Englishman to reach the goal arrived some twenty minutes or so after the winner.

Now, the Englishmen took various kinds of food on the way. They do not study such things much in England, and if one told the average English runner some of the facts which science has discovered about his muscles and his heart and his lungs, upon which all his running depends, he would probably want to know how fast his adviser could run, and would think that he did not know what he was talking about. Now, a large number of the American runners arrived in the front, including the winner.

### AN IMPORTANT TRUTH THAT MARATHON RUNNERS DID NOT UNDERSTAND

The American team took no food during the race; the Italian runner also, who actually passed the tape first, took no food, but he believed in alcohol during a race, not knowing that one always has to pay a heavy price and very quickly, too, for the apparent good one gets out of alcohol. He paid his price by collapsing before he got to the tape, and he afterwards did the same thing over here. When we take a meal, it is about four and a half to six hours on

the average before the valuable part of the food is prepared and passed into the blood. Until it gets into the blood it is doing no work for us, but, on the contrary, we are working upon it. Now, a Marathon race takes about three hours or less. So we may say that the English team would begin to get some good out of the food they had taken about two hours after the race was over. In point of fact, it is more likely that, what with anxiety and fatigue, they would never get any good out of that food. During the race it lay undigested in their stomachs, and merely hampered the working of the heart, which is what a runner really runs with, if he knew.

Now, long-distance running is only a sport, and by no means the best of sports, because it is selfish. But this ignorance of the truths about the body, which showed itself among the Englishmen in this race, shows itself also in a much bigger race which the British nation is running with the German nation and the American nation and the Japanese nation to-day.

### THE KNOWLEDGE THAT HELPS, AND THE KNOWLEDGE THAT IS OF NO USE

Though we won the race, nevertheless, in spite of all we spend on education, we are not yet teaching ourselves or our children the great lessons of Nature—the mighty mother of all real wisdom. All over the country, not in single cases, but in millions of cases, we are doing more foolish things than the English runners who ate food that required twice as long to digest as the race took to run. All over the country, boys and girls are learning the names of the kings of Israel and the height of Mount Everest, and the name of the English king who died of eating too many lampreys, while their mouths are full of decaying teeth of which they never think, which they have never learnt to use, for which no one does anything, and yet the happiness, the usefulness, and worth of their future lives largely depend upon these very teeth which are being allowed to decay while the boy or girl learns the names of many things which are not at all important.

Let us hope that, when we who are children, and who are reading this book, grow up, we shall understand that all living creatures are parts of Nature;

that there are no laws or facts of Nature which do not matter ; that if we are to command Nature, and use her for our own human purposes, we must command her by obeying her, as Bacon said. We might think, perhaps, that lessons like these were not to be learnt from such a humble thing as the stomach, but there is nothing in the world that is common or unclean, and, as Tennyson tells us, if we understand all there is to know about only the smallest flower, we shall know more about ourselves and about God.

We have now learnt when not to eat, and why we should not eat then. It is to be added that when we have a cold, and often also in very hot weather, our appetite fails. It does this for a good reason, and we shall be wise to obey it. But there is another important point about when to eat. Our appetite cannot always foretell exactly how much we shall like. This is especially true with children, who often ask for a large helping, and then cannot eat it all. We ought to learn not to be greedy, and we ought to think twice before we force food down ; it is very likely that it will not be digested, and sometimes, when people do this with foods that are really valuable, they simply get a dislike for them, and that is a pity.

#### HOW THE BLOOD NEEDS FOOD AND CALLS TILL IT IS SATISFIED

When we come to study the appetite very carefully, we find that it is by no means entirely due to feelings from the stomach. The bottom reason of real hunger is the state of the blood. Now, we have already learnt that it takes some hours for the food to pass into the blood. So a man may have swallowed quite enough food to satisfy his blood when it gets there, but until the food gets there the blood is still crying for more. This sort of thing happens every day, both to grown-up people and to children. They go on eating until they come to the very end of their appetite. If they were wiser, they would stop when they feel quite capable of going on, and still have a little appetite left. That feeling of hunger will pass away when the food gets into the blood.

Probably the reason why healthy people have rather more appetite than they really need in these days is that our ancestors, long ago, when men were wild, were not always sure where their

next meal was coming from, and needed good appetites to deal with a meal when they got the chance. The case is very different now, when our meals come regularly, whether we need them or not. This has its good side, but it is also apt to have its bad side, which we can study equally well in ourselves, or in the domestic animals for whom we make the same unnatural arrangement.

#### THE IMPORTANCE OF APPETITE AND WHY IT MUST BE CONTROLLED

Now, we have been saying a great deal about appetite, but not a word too much. The appetites of human beings, for all sorts of things and not only for food, are among the most important things about us. It is mainly these various appetites that make us do things at all, rightly or wrongly, and the great defect of most that is written or taught about food is that the appetite is forgotten or misunderstood. Now we must go on to study some special foods, never forgetting that milk and bread have their own special precious place which other foods cannot compete with, and that therefore we have learnt about them first, and must never forget about them. Let us first make a note about some of the foods that cost more than they are worth. That, of course, is true of a great many foods, but many of them we know to be luxuries, and make no mistake about. There are others, however, which are very dear in proportion to their worth, and yet have a really high reputation as foods.

First of all, let us take fish, and let us notice that the difference in price between, say, cod and halibut, and in general, between one kind of fish and another, is entirely a matter of flavour. As long as fish is fresh, or properly salted or smoked, it matters little what fish we are eating. Everything considered, even including the question of flavour, the herring must take the first place among all the fishes that mankind uses.

#### THE KINDS OF FISH THAT ARE BEST FOR FOOD

It must not, of course, be supposed that other fish are not good also, but the herring beats them all on the score of cost ; it is very digestible, and has a very good flavour. Different kinds of fish vary in the amount of fat they contain, and, as a rule, the less fat, the more digestible they are. Cod,

whiting, and haddock contain least fat of all. But, of course, fat is very good if one can digest it. No more need be said about this here. Simply we are to remember that whenever we pay more for a given weight of fish than we have to pay for that weight of the cheap fishes, such as herring, we are merely spending money for a nice taste.

**THINGS THAT ARE GOOD FOR INVALIDS,  
BUT BAD FOR HEALTHY PEOPLE**

Healthy people, also, are almost throwing their money away when they take meat extracts. Taken with hot water, these things have a stimulating action, though probably not very much more than the hot water itself has. But, as Baron Liebig himself said many years ago, they are not foods. For people who are ill, and whose appetite is also ill, meat extract and beef-tea are often very useful, because they help the appetite; but it is a great mistake to give these things to children, who ought to need neither stimulants nor fillips to the appetite. If we were really meant to require mustard and pepper, and so on, Nature would not have forgotten things of that kind when she made her food, which is milk.

When meat extracts are made, the substance of the muscle fibres is all left behind. This substance can be prepared and made into a meat juice, and so on, and is a true food, though very expensive. But the stuff that goes into the meat extract contains very little food of any kind. If we make experiments on animals, we find that animals fed on beef extract die of starvation as quickly as animals that are not fed at all. That is a cruel experiment, but whether or not men were justified in making it, that is the result of it. The secret of the success of meat extracts and the public faith in them is that they get out of the muscle fibre everything that has a taste—everything, indeed, except the food itself, and it is the taste that cheats us.

**THE COST OF FOOD IS NOT REALLY  
ACCORDING TO ITS VALUE**

Cocoa is a food for which some good may be said; it helps many people to drink milk, but we ought to regard it as highly expensive, as it really is, in proportion to the food material it actually contains. We must discuss its properties later. In studying the cost of food in proportion to its food-value, we should

always be ready to assume that directly the price begins to go up, we are paying, not for food, but for flavour. The products of wheat-flour and of oatmeal ought to rank as the standard for cheapness. We know their splendid food-value. In the same way, in places near the sea the cod or herring ought to rank as the standard. When we pay more than these fish costs, either for other kinds of fish or for meat, or for game or for poultry, we are paying for flavour. This is not to say that we ought not to pay for flavour, but it is simply stating a scientific fact that everybody ought to know.

It is a very important matter, from the national point of view, that when we put taxes on articles, or when we take them off, we should know what those articles are worth for the life of the people. For instance, everyone agrees that it is right to tax alcohol highly, because it is not a necessary of life. It may or may not be right to tax wheat, but at least we ought to know what we are doing. To-day many nations place substantial taxes on alcohol, tobacco, tea, and coffee, and these are often described as taxes on food. This is a very serious error, for none of these things has any food-value.

**TEA AND COFFEE AND OTHER THINGS  
THAT ARE NOT REAL FOODS**

Though they are not foods, yet alcohol, tobacco, tea, and coffee are extremely important things in the life of a nation, for it consumes gigantic quantities of all of them, and every one of them stands for powerful chemical substances with various kinds of effects upon the body; some which we must call good, others bad, and others, so far as we can find out, neither good nor bad. We shall have to study these things very soon, but before that we must learn some more about the real foods, beginning with meat, of which we also consume large quantities, and about which there is a great deal that we ought to know.

At the zoos we find animals that will not eat anything but meat, and others that will not touch it. Yet in both cases the animals may be healthy and strong, so that eating meat is not a matter of life and death, as some people seem to fancy. Still, this is a very important question, as we shall see—if for no other reason than that meat is a dear food.

The next part of this is on page 3213.



# THE TRIAL OF THE KNAVE OF HEARTS



The King and Queen of Hearts were seated on their throne, with a great crowd assembled about them. In the very middle of the court was a table, with a large dish of tarts upon it. The first witness was the Hatter. He came in with a teacup in one hand and a piece of bread and butter in the other. "I beg pardon, your Majesty," he began, "for bringing these in; but I hadn't quite finished my tea when I was sent for." The Queen put on her spectacles, and began staring hard at the Hatter, who turned pale and fidgeted. "Give your evidence," said the King; "and don't be nervous, or I'll have you executed on the spot."

## ALICE'S ADVENTURES IN WONDERLAND

WE left Alice just after she got up and walked away from the Mad Tea-Party. It will be remembered that the behaviour of the Hatter was altogether so rude that after she had tolerated his conduct for quite a long time she felt that she had to show him and the March Hare what she thought of them, by rising up and taking an abrupt leave of the party. As she went away they were trying to put the Dormouse in the teapot! Making her way through the wood, she vowed never to go there again. Her purpose was now to get into the beautiful garden, and this at last she managed to do. The adventures that befell her there are told in the following pages.

## ALICE & THE QUEEN OF HEARTS

### With the Mock Turtle's Story and the Lobster Quadrille

ALICE got into the beautiful garden at last, but she had to nibble a bit of the mushroom again to bring herself down to twelve inches after she had got the golden key, so as to get through the little door. It was a lovely garden, and in it was the Queen's croquet-ground. The Queen of Hearts was very fond of ordering heads to be cut off. "Off with his head!" was her favourite phrase whenever anybody displeased her. She asked Alice to play croquet with her, but they had no rules; they had live flamingoes for mallets, and the soldiers had to stand on their hands and feet to form the hoops. It was extremely awkward, especially as the balls were hedgehogs, who sometimes rolled away without being hit. The Queen had a great quarrel with the Duchess, and wanted to take her head off. Alice found the state of affairs in the lovely garden not all so beautiful as she had expected. But after the game of croquet, the Queen said to Alice:

"Have you seen the Mock Turtle yet?"

"No," said Alice. "I don't even know what a mock turtle is."

"It's the thing mock turtle soup is made from," said the Queen.

"I never saw one or heard of one," said Alice.

"Come on, then," said the Queen, "and he shall tell you his history."

As they walked off together, Alice heard the King say in a low voice

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to the company generally: "You are all pardoned."

"Come, *that's* a good thing!" she said to herself, for she had felt quite unhappy at the number of executions the Queen had ordered.

They very soon came upon a gryphon, lying fast asleep in the sun.

"Up, lazy thing!" said the Queen; "and take this young lady to see the Mock Turtle, and to hear his history. I must go back and see after some executions I have ordered." And she walked off, leaving Alice alone with the Gryphon.

Alice did not quite like the look of the creature, but, on the whole, she thought it would be quite as safe to stay with it as to go after that savage Queen; so she waited.

The Gryphon sat up and rubbed its eyes; then it watched the Queen till she was out of sight, then it chuckled.

"What fun!" said the Gryphon, half to itself, half to Alice.

"What *is* the fun?" said Alice.

"Why, *she*," said the Gryphon. "It's all her fancy, that; they never executes nobody, you know. Come on!"

"Everybody says 'Come on' here," thought Alice, as she went slowly after it. "I never was so ordered about before in all my life, never!"

They had not gone far before they saw the Mock Turtle in the distance, sitting sad and lonely on a little ledge of rock, and, as they came nearer,

Alice could hear him sighing as if his heart would break. She pitied him deeply.

"What is his sorrow?" she asked the Gryphon, and the Gryphon answered, very nearly in the same words as before:

"It's all his fancy, that. He hasn't got no sorrow, you know. Come on!"

So they went up to the Mock Turtle, who looked at them with large eyes full of tears, but said nothing.

"This here young lady," said the Gryphon, "she wants for to know your history, she do."

"I'll tell it her," said the Mock Turtle in a deep, hollow tone. "Sit down, both of you, and don't speak a word till I've finished."

So they sat down, and nobody spoke for some minutes. Alice thought to herself: "I don't see how he can ever finish if he doesn't begin." But she waited patiently.

"Once," said the Mock Turtle at last, with a deep sigh, "I was a real turtle."

These words were followed by a very long silence, broken only by an occasional exclamation of "Hjckrrh!" from the Gryphon, and the constant, heavy sobbing of the Mock Turtle. Alice was very nearly getting up and saying: "Thank you, sir, for your interesting story," but she could not help thinking there *must* be more to come, so she sat still and said nothing.

"When we were little," the Mock Turtle went on at last, more calmly, though still sobbing a little now and then, "we went to school in the sea. The master was an old turtle—we used to call him Tortoise——"



"Off with his head!" was the favourite phrase of the Queen of Hearts whenever anybody displeased her. She asked Alice to play croquet with her; but they followed no rules; they had live flamingoes for mallets, and the balls were living hedgehogs rolled up, who sometimes moved away without being hit.

"Why did you call him Tortoise if he wasn't one?" Alice asked.

"We called him Tortoise because he taught us," said the Mock Turtle angrily. "Really, you are very dull!"

"You ought to be ashamed of yourself for asking such a simple question," added the Gryphon; and then they both sat silent and looked at poor Alice, who felt ready to sink into the earth. At last the Gryphon said to the Mock Turtle:

"Drive on, old fellow! Don't be all day about it!" And he went on in these words:

"Yes, we went to school in the sea, though you mayn't believe it——"

"I never said I didn't!" interrupted Alice.

"You did!" said the Mock Turtle.

"Hold your tongue!" added the Gryphon, before Alice could speak again. The Mock Turtle went on:

"We had the best of educations—in fact, we went to school every day——"

"I've been to a day-school, too," said Alice. "You needn't be so proud as all that."

"With extras?" asked the Mock Turtle a little anxiously.

"Yes," said Alice; "we learned French and music."

"And washing?" said the Mock Turtle.

"Certainly not!" said Alice indignantly.

"Ah, then yours wasn't a really good school!" said the Mock Turtle, in a tone of great relief. "Now, at *ours* they had at the end of the bill, 'French, music, and washing—extra.'"

"You couldn't have wanted it much, living at the bottom of the sea."

"I couldn't afford to learn it," said the Mock Turtle, with a sigh. "I only took the regular course."

"What was that?" inquired Alice.

"Reeling and Writhing, of course, to begin with," the Mock Turtle replied; "and then the different branches of Arithmetic—Ambition, Distraction, Uglification, and Derision."

"I never heard of 'Uglification,'" Alice ventured to say. "What is it?"

The Gryphon lifted up both its paws in surprise.

"Never heard of uglifying!" it exclaimed. "You know what to beautify is, I suppose?"

"Yes," said Alice doubtfully; "it means—to—make—anything—prettier."

"Well, then," the Gryphon went on, "if you don't know what to uglify is, you *are* a simpleton."

Alice did not feel encouraged to ask any more questions about it, so she turned to the Mock Turtle, and said: "What else had you to learn?"

"Well, there was Mystery," the Mock Turtle replied, counting off the subjects on his flappers—"Mystery, ancient and modern, with Seaography; then Drawling—the Drawling-master was an old conger-eel, that used to come

THE MOCK TURTLE TELLS HIS STORY TO ALICE AND THE GRYPHON



"Once," said the Mock Turtle, with a deep sigh, "I was a real turtle." These words were followed by a very long silence, broken only by an occasional exclamation of "Hjckrrh!" from the Gryphon, and the constant, heavy sobbing of the Turtle. Alice was very nearly getting up and saying: "Thank you, sir, for your interesting story," but she could not help thinking there *must* be more to come, so she sat still and said nothing.

once a week ; *he* taught us Drawing, Stretching, and Fainting in Coils."

"What was *that* like ?" said Alice.

"Well, I can't show it you myself," the Mock Turtle said ; "I'm too stiff. And the Gryphon never learnt it."

"Hadh't time," said the Gryphon. "I went to the Classical master, though. He was an old crab, *he* was."

"I never went to him," the Mock Turtle said, with a sigh. "He taught Laughing and Grief, they used to say."

"So he did, so he did," said the Gryphon, sighing in its turn. And both creatures hid their faces in their paws.

"And how many hours a day did you do lessons ?" said Alice, in a hurry to change the subject.

"Ten hours the first day," said the Mock Turtle ; "nine the next, and so on."

"What a curious plan !" exclaimed Alice.

"That's the reason they're called lessons," the Gryphon remarked ; "because they lessen from day to day."

This was quite a new idea to Alice, and she thought it over a little before she made her next remark.

"Then the eleventh day must have been a holiday ?"

"Of course it was," said the Mock Turtle.

"And how did you manage on the twelfth ?" Alice went on eagerly.

"That's enough about lessons," the Gryphon interrupted, in a very decided tone. "Tell her something about the games now."

The Mock Turtle sighed deeply, and drew the back of one flapper across his eyes. He looked at Alice, and tried to speak ; but for a minute or two sobs choked his voice.

"Same as if he had a bone in his throat," said the Gryphon, and it set to work shaking him and punching him in the back.

At last the Mock Turtle recovered his voice, and, with tears running down his cheeks, he went on again :

"You may not have lived much under the sea"—"I haven't," said Alice—"and perhaps you were never even introduced to a lobster" (Alice began to say, "I once tasted——" but checked herself, and said, "No, never") "so you can have no idea what a delightful thing a Lobster Quadrille is !"

"No, indeed," said Alice. "What sort of a dance is it ?"

"Why," said the Gryphon, "you first form into a line along the sea-shore——"

"Two lines !" cried the Mock Turtle. "Seals, turtles, salmon, and so on. Then when you've cleared all the jelly-fish out of the way——"

"*That* generally takes some time," interrupted the Gryphon.

"You advance twice——"

"Each with a lobster as a partner !" cried the Gryphon.

"Of course," the Mock Turtle said. "Advance twice, set to partners——"

"Change lobsters, and retire in same order," continued the Gryphon.

"Then, you know," the Mock Turtle went on, "you throw the——"

"The lobsters !" shouted the Gryphon, with a bound into the air.

"As far out to sea as you can——"

"Swim after them !" screamed the Gryphon.

"Turn a somersault in the sea !" cried the Mock Turtle, capering wildly about.

"Change lobsters again !" yelled the Gryphon, at the top of its voice.

"Back to land again, and—that's all the first figure," said the Mock Turtle, suddenly dropping his voice. And the two creatures, who had been jumping about like mad things all this time, sat down again very sadly and quietly, and looked at Alice.

"It must be a very pretty dance," said Alice timidly.

"Would you like to see a little of it ?" said the Mock Turtle.

"Very much indeed," said Alice.

"Come, let's try the first figure," said the Mock Turtle to the Gryphon. "We can do without lobsters, you know. Which shall sing ?"

"Oh, *you* sing !" said the Gryphon. "I've forgotten the words."

So they began solemnly dancing round and round Alice, every now and then treading on her toes when they passed too close, and waving their fore-paws to mark the time ; while the Mock Turtle sang this, very slowly and sadly :

"Will you walk a little faster ?" said a whiting to a snail,

"There's a porpoise close behind us, and he's treading on my tail."

## HOW THEY DANCED THE LOBSTER QUADRILLE FOR ALICE



"Come, let's try the first figure," said the Mock Turtle to the Gryphon. "We can do without lobsters, you know." So they began solemnly dancing round Alice, every now and then treading on her toes when they passed too close, and waving their fore-paws to mark the time; while the Mock Turtle sang very slowly and sadly.

See how eagerly the lobsters and the turtles all advance!

They are waiting on the shingle—will you come and join the dance?

Will you, won't you, will you, won't you, will you join the dance?

Will you, won't you, will you, won't you, won't you join the dance?

"You can really have no notion how delightful it will be

When they take us up and throw us, with the lobsters, out to sea!"

But the snail replied "Too far, too far!" and gave a look askance—

Said he thanked the whiting kindly, but he would not join the dance.

Would not, could not, would not, could not, would not join the dance.

Would not, could not, would not, could not, could not join the dance.

"What matters it how far we go?" his scaly friend replied,

"There is another shore, you know, upon the other side.

The further off from England the nearer is to France—

Then turn not pale, beloved snail, but come and join the dance.

Will you, won't you, will you, won't you, will you join the dance?

Will you, won't you, will you, won't you, won't you join the dance?"

"Thank you; it's a very interesting dance to watch," said Alice, feeling very glad that it was over at last. "And I do so like that curious song about the whiting."

"Oh, as to the whiting," said the Mock Turtle, "they— You've seen them, of course?"

"Yes," said Alice; "I've often seen them at dinn—"

She checked herself hastily.

"I don't know where Dinn may be," said the Mock Turtle; "but if you've seen them so often, of course you know what they're like."

"I believe so," Alice replied thoughtfully. "They have their tails in their mouths, and they're all over crumbs."

"You're wrong about the crumbs," said the Mock Turtle. "Crumbs would all wash off in the sea. But they *have* their tails in their mouths; and the reason is——" Here the Mock Turtle yawned and shut his eyes. "Tell her about the reason, and all that," he said to the Gryphon.



"The reason is," said the Gryphon, "that they *would* go with the lobsters to the dance. So they got thrown out to sea. So they had to fall a long way. So they got their tails fast in their mouths. So they couldn't get them out again. That's all."

"Thank you," said Alice, "it's very interesting. I never knew so much about a whiting before."

"I can tell you more than that, if you like," said the Gryphon. "Do you know why it's called a whiting?"

"I never thought about it," said Alice. "Why?"

"*It does the boots and shoes,*" the Gryphon replied very solemnly.

Alice was thoroughly puzzled. "Does the boots and shoes!" she repeated in a wondering tone.

"Why, what are *your* shoes done with?" said the Gryphon. "I mean, what makes them so shiny?"

Alice looked down at them, and considered a little before she gave her answer. "They're done with blacking, I believe."

"Boots and shoes under the sea," the Gryphon went on in a deep voice, "are done with whiting. Now you know."

"And what are they made of?" Alice asked, in a tone of great curiosity.

"Soles and eels, of course," the Gryphon replied rather impatiently. "Any shrimp could have told you that."

"If I'd been the whiting," said Alice, whose thoughts were still running on the song, "I'd have said to the porpoise: 'Keep back, please; we don't want *you* with us.'"

"They were obliged to have him with them," the Mock Turtle said. "No wise fish would go anywhere without a porpoise."

"Wouldn't it, really?" said Alice, in a tone of great surprise.

"Of course not!" said the Mock Turtle. "Why, if a fish came to *me*, and told me he was going on a journey, I should say: 'With what porpoise?'"

"Don't you mean 'purpose'?" said Alice.

"I mean what I say," the Mock Turtle replied in an offended tone. And the Gryphon added: "Come, let's hear some of *your* adventures."

"I could tell you my adventures, beginning from this morning," said Alice, a little timidly; "but it's no use

going back to yesterday, because I was a different person then."

"Explain all that," said the Mock Turtle.

"No, no; the adventures first!" said the Gryphon impatiently. "Explanations take such a dreadful time."

So Alice began telling them her adventures from the time when she first saw the White Rabbit. After a while a cry of "The trial's beginning!" was heard in the distance.

"Come on!" cried the Gryphon. And, taking Alice by the hand, it hurried off. . . . "What trial is it?" Alice panted, as she ran, but the Gryphon only answered: "Come on!" and ran the faster.

The King and Queen of Hearts were seated on their throne when they arrived, with a great crowd assembled about them—all sorts of little birds and beasts, as well as the whole pack of cards. The Knave was standing before them, in chains, with a soldier on each side to guard him; and near the King was the White Rabbit, with a trumpet in one hand, and a scroll of parchment in the other. In the very middle of the court was a table, with a large dish of tarts upon it. They looked so good that it made Alice quite hungry to look at them. "I wish they'd get the trial done," she thought, "and hand round the refreshments." But there seemed to be no chance of this, so she began looking at everything about her to pass away the time. . . .

The twelve jurors were all writing very busily on slates. "What are they doing?" Alice whispered to the Gryphon. "They can't have anything to put down yet, before the trial's begun."

"They're putting down their names," the Gryphon whispered in reply, "for fear they should forget them before the end of the trial."

"Stupid things!" Alice began in a loud, indignant voice, but she stopped herself hastily, for the White Rabbit cried out: "Silence in the court!" and the King put on his spectacles and looked anxiously round, to make out who was talking.

Alice could see, as well as if she were looking over their shoulders, that all the jurors were writing down "stupid things!" on their slates, and she could even make out that one of them didn't

know how to spell "stupid," and that he had to ask his neighbour to tell him. "A nice muddle their slates 'll be in before the trial's over!" thought Alice.

One of the jurors had a pencil that squeaked. This, of course, Alice could *not* stand, and she went round the court and got behind him, and very soon found an opportunity of taking it away.



THE KNAVE OF HEARTS WHO STOLE THE TARTS

She did it so quickly that the poor little juror (it was Bill, the Lizard) could not make out at all what had become of it; so, after hunting all about for it, he was obliged to write with one finger for the rest of the day. And this was of very little use, as it left no mark on the slate.

"Herald, read the accusation!" said the King.

On this the White Rabbit blew three blasts on the trumpet, and then unrolled the parchment scroll, and read as follows:

"The Queen of Hearts, she made some tarts  
All on a summer's day;  
The Knave of Hearts, he stole those tarts,  
And took them quite away."

"Consider your verdict," the King said to the jury.

"Not yet, not yet!" the Rabbit hastily interrupted. "There's a great deal to come before that!"

"Call the first witness," said the King; and the White Rabbit blew three blasts on the trumpet, and called out: "First witness!"

The first witness was the Hatter. He came in with a teacup in one hand and a piece of bread and butter in the other. "I beg pardon, your Majesty," he began, "for bringing these in; but I hadn't quite finished my tea when I was sent for."

"You ought to have finished," said the King. "When did you begin?"

The Hatter looked at the March Hare, who had followed him into the court, arm in arm with the Dormouse. "Fourteenth of March, I *think* it was," he said.

"Fifteenth," said the March Hare.

"Sixteenth," added the Dormouse.

"Write that down," the King said to the jury; and the jury eagerly wrote down all three dates on their slates, and then added them up,

and reduced the answer to shillings and pence.

"Take off your hat," the King said to the Hatter.

"It isn't mine," said the Hatter.

"*Stolen!*" the King exclaimed, turning to the jury, who instantly

made a memorandum of the fact. "I keep them to sell," the Hatter added as an explanation; "I've none of my own. I'm a hatter."

Here the Queen put on her spectacles, and began staring hard at the Hatter, who turned pale and fidgeted.

"Give your evidence," said the King; "and don't be nervous, or I'll have you executed on the spot."

This did not seem to encourage the witness at all; he kept shifting from one foot to the other, looking uneasily at the Queen, and in his confusion he bit a large piece out of his teacup instead of the bread and butter.

Just at this moment Alice felt a very

curious sensation, which puzzled her a good deal until she made out what it was. She was beginning to grow larger again, and she thought at first she would get up and leave the court; but on second thoughts she decided to remain where she was as long as there was room for her.

"I wish you wouldn't squeeze so," said the Dormouse, who was sitting next to her. "I can hardly breathe."

"I can't help it," said Alice very meekly; "I'm growing."

"You've no right to grow *here*," said the Dormouse.

"Don't talk nonsense," said Alice more boldly; "you know you're growing, too."

"Yes, but *I* grow at a reasonable pace," said the Dormouse, "not in that ridiculous fashion." And he got up very sulkily and crossed over to the other side of the court.

All this time the Queen had never left off staring at the Hatter, who trembled so, that he shook both his shoes off.

"Give your evidence," the King repeated angrily, "or I'll have you executed, whether you're nervous or not."

"I'm a poor man, your Majesty," the Hatter began in a trembling voice, "and I hadn't but just begun my tea—not above a week or so—and what with the bread and butter getting so thin—and the twinkling of the tea—"

"The twinkling of *what*?" said the King.

"It *began* with the tea," the Hatter replied.

"Of course, twinkling begins with a *T*!" said the King sharply. "Do you take me for a dunce? Go on!"

"I'm a poor man," the Hatter went on, "and most things twinkled after that—only the March Hare said—"

"I didn't!" the March Hare interrupted in a great hurry.

"You did!" said the Hatter.

"I deny it!" said the March Hare.

"He denies it," said the King; "leave out that part."

"Well, at any rate, the Dormouse said—" the Hatter went on, looking anxiously round to see if he would deny it too; but the Dormouse denied nothing, being fast asleep.

"After that," continued the Hatter, "I cut some more bread and butter—"

"But what did the Dormouse say?" one of the jury asked.

"That I can't remember," said the Hatter.

"You *must* remember," remarked the King, "or I'll have you executed."

The miserable Hatter dropped his teacup and bread and butter, and went down on one knee. "I'm a poor man, your Majesty," he began.

"You're a *very* poor *speaker*," said the King.

Here one of the guinea-pigs cheered, and was immediately suppressed by the officers of the court.

"If that's all you know about it, you may stand down," continued the King.

"I can't go no lower," said the Hatter; "I'm on the floor, as it is."

"Then you may *sit* down," the King replied.

Here the other guinea-pig cheered, and was suppressed.

"Come, that finishes the guinea-pigs!" thought Alice. "Now we shall get on better."

"I'd rather finish my tea," said the Hatter, with an anxious look at the Queen.

"You may go," said the King; and the Hatter hurriedly left the court, without even waiting to put on his shoes. "—and just take his head off outside," the Queen added to one of the officers; but the Hatter was out of sight before the officer could get to the door.

"Call the next witness!" said the King.

Alice watched the White Rabbit as he fumbled over the list, feeling very curious to see what the next witness would be like, "for they haven't got much evidence *yet*," she said to herself. Imagine her surprise when the White Rabbit read out, at the top of his shrill little voice, the name "Alice!"

"Here!" cried Alice, quite forgetting in the flurry of the moment how large she had grown in the last few minutes, and she jumped up in such a hurry that she tipped over the jury-box with the edge of her skirt, upsetting all the jury-men on to the heads of the crowd below, and there they lay sprawling about, reminding her very much of a globe of gold-fish she had accidentally upset the week before.

"Oh, I *beg* your pardon!" she exclaimed in a tone of great dismay, and began picking them up again as quickly

as she could, for the accident of the gold-fish kept running in her head, and she had a vague sort of idea that they must be collected at once, and put back into the jury-box, or they would die.

"The trial cannot proceed," said the King, in a very grave voice, "until all the jurymen are back in their proper places—all," he repeated with great emphasis, looking hard at Alice as he said so.

Alice looked at the jury-box, and saw that, in her haste, she had put the Lizard in head downwards, and the poor little thing was waving its tail about in a melancholy way, being quite unable to move. She soon got it out again, and put it right; "not that it signifies much," she said to herself; "I should think it would be *quite* as much use in the trial one way up as the other."

As soon as the jury had a little recovered from the shock of being upset, and their slates and pencils had been found and handed back to them, they set to work very diligently to write out a history of the accident, all except the Lizard, who seemed too much overcome to do anything but sit with its mouth open, gazing up into the roof of the court.

"What do you know about this business?" the King said to Alice.

"Nothing," said Alice.

"Nothing *whatever*?" persisted the King.

"Nothing whatever," said Alice.

"That's very important," the King said, turning to the jury. They were just beginning to write this down on their slates, when the White Rabbit interrupted. "Unimportant, your Majesty means, of course," he said, in a very respectful tone, but frowning and making faces at him as he spoke.

"Unimportant, of course, I meant,"



The whole pack of cards came flying down upon her; she gave a little scream, and tried to beat them off. Then she found herself lying on the bank, with her head in the lap of her sister, who was gently brushing away some dead leaves that had fluttered down from the trees on her face.

the King hastily said, and went on to himself in an undertone, "important—unimportant—unimportant—important—" as if he were trying which word sounded best.

Some of the jury wrote it down "important," and some "unimportant." At this moment the King, who had been for some time busily writing in his notebook, called out "Silence!" and read out from his book: "Rule Forty-two. *All persons more than a mile high to leave the court.*"

Everybody looked at Alice.

"I'm not a mile high," said Alice.

"You are," said the King. "Nearly two miles high," added the Queen.

"Well, I shan't go, at any rate,"

said Alice. "Besides, that's not a regular rule; you invented it just now." "It's the oldest rule in the book," said the King.

"Then it ought to be Number One," said Alice.

The King turned pale, and shut his notebook hastily. "Consider your verdict," he said to the jury, in a low, trembling voice. . . . "No, no!" said the Queen. "Sentence first—verdict afterwards."

"Stuff and nonsense!" said Alice loudly. "The idea of having the sentence first!"

"Hold your tongue!" said the Queen, turning purple.

"I won't!" said Alice.

"Off with her head!" the Queen shouted at the top of her voice. Nobody moved.

"Who cares for you?" said Alice (she had grown to her full size by this time). "You're nothing but a pack of cards!"

At this the whole pack rose up into the air, and came flying down upon her; she gave a little scream, half of fright and half of anger, and tried to beat them off, and found herself lying on the bank, with her head in the lap of her sister, who was gently brushing away some dead leaves that had fluttered down from the trees on her face.

"Wake up, Alice dear!" said her sister. "Why, what a long sleep you've had!"

"Oh, I've had such a curious dream!" said Alice; and she told her sister, as well as she could remember them, all these strange adventures of hers that we have just been reading about; and when she had finished, her sister kissed her, and said: "It *was* a curious dream, dear, certainly. But now run in to your tea; it's getting late."

So Alice got up and ran off, thinking while she ran, as well she might, what a wonderful dream it had been.

## THE FABLES OF ÆSOP THE SLAVE

### THE OLD HOUND

A HOUND who had worked well in the hunt for many years at last became old and feeble. One day when hunting the stag he happened to be the first to come up to the animal, and seized him by the leg; but his old broken teeth were not able to hold tightly, and so the deer escaped. Upon this his master flew into a great rage and began to strike the dog with his stick. The poor old hound replied:

"Do not strike your old servant. I would gladly serve you still, but I have not the strength. If I am not of much use now, remember how useful I have been."

*Never despise old people because they are feeble and perhaps not very sharp. Remember how much good work they did while they were able.*

### THE TOWN MOUSE AND THE COUNTRY MOUSE

THE country mouse one day received a visit from another mouse who lived in the town, and who had been his playfellow when quite young. He did his best to provide the town mouse with nice food, but it was quite clear that he did not care much about it.

The town mouse presently said to him: "How can you put up with this nasty little hole in a farmyard where it is often cold and wet, when you might come to the town with me and live in a fine house and have all kinds of nice things to eat?"

He soon persuaded the country mouse, and the two set out that night to return to town, and safely arrived at the house where the town mouse lived. Here the country mouse found everything very comfortable. He sat on a rich carpet and ate scraps of all manner of nice things that had been served for supper. He was enjoying himself very much, when suddenly the noise of someone opening the door and the barking of two or three dogs that came running in nearly frightened the country mouse out of his wits, and he was only just able to escape in time.

When he recovered his breath, he exclaimed:

"If this is town life it will not do for me. I would rather have my poor quiet hole in the farmyard, where I can live in peace and safety."

*We should not envy rich people, for they often have much more care and trouble than the poor.*

THE NEXT STORIES ARE ON PAGE 3199

# The Child's Book of POETRY

## A FAMOUS POEM BY LORD BYRON

**L**ORD BYRON'S famous poem tells the story of three brothers who were imprisoned in the ancient castle of Chillon, which still stands on the Lake of Geneva. They suffered in the cause of religion. Two of them died in the prison, and were buried beneath the floor of the dungeon in which they were immured. The third of the brothers, who tells the story as set forth in the poem, was set free at last, but having lost, by the death of his two brothers, all that he held dear, his freedom came too late to be enjoyed, and the poem ends with his saying: "Even I regained my freedom with a sigh." Only a portion of the famous poem is here given, but it contains some of the finest passages, and particularly that in which the poet makes the prisoner say that if the bird which visited him and sang to him in his loneliness had indeed been the spirit of his brother, it would not have heedlessly flown away after cheering him with its song.

## THE PRISONER OF CHILLON

O God! it is a fearful  
thing  
To see the human soul  
take wing  
In any shape, in any mood:  
I've seen it rushing forth in blood,  
I've seen it on the breaking ocean  
Strive with a swoll'n, convulsive motion,  
I've seen the sick and ghastly bed  
Of sin delirious with its dread;  
But these were horrors—this was woe  
Unmix'd with such—but sure and slow;  
He faded, and so calm and meek,  
So softly worn, so sweetly weak,  
So tearless, yet so tender, kind,  
And grieved for those he left behind;  
With all the while a cheek whose bloom  
Was a mockery of the tomb,  
Whose tints as gently sunk away  
As a departing rainbow's ray;  
An eye of most transparent light,  
That almost made the dungeon bright,  
And not a word of murmur, not  
A groan o'er his untimely lot—  
A little talk of better days,  
A little hope my own to raise,  
For I was sunk in silence—lost  
In this last loss, of all the most;  
And then the sighs he would suppress  
Of fainting Nature's feebleness,  
More slowly drawn, grew less and less:  
I listened, but I could not hear;  
I call'd, for I was wild with fear;  
I knew 'twas hopeless, but my dread  
Would not be thus admonish'd;  
I call'd, and thought I heard a sound—  
I burst my chain with one strong bound,  
And rushed to him—I found him not,  
I only stirr'd in this black spot,  
I only lived, I only drew  
The accursed breath of dungeon-dew;  
The last, the sole, the dearest link  
Between me and the eternal brink,  
Which bound me to my failing race,  
Was broken in this fatal place.  
One on the earth, and one beneath—  
My brothers—both had ceased to breathe:  
I took that hand which lay so still,  
Alas! my own was full as chill;  
I had not strength to stir, or strive,  
But felt that I was still alive—

CONTINUED FROM 3030



A frantic feeling when we  
know  
That what we love shall  
ne'er be so.  
I know not why  
I could not die,  
I had no earthly hope but faith,  
And that forbade a selfish death.  
What next befell me then and there  
I know not well—I never knew—  
First came the loss of light and air,  
And then of darkness, too:  
I had no thought, no feeling—none—  
Among the stones I stood a stone,  
And was scarce conscious what I wist,  
As shrubless crags within the mist;  
For all was blank, and bleak, and grey;  
It was not night, it was not day;  
It was not even the dungeon-light,  
So hateful to my heavy sight,  
But vacancy absorbing space,  
And fixedness without a place;  
There were no stars, no earth, no time,  
No check, no change, no good, no crime,  
But silence and a stirless breath  
Which neither was of life nor death;  
A sea of stagnant idleness,  
Blind, boundless, mute, and motionless!  
A light broke in upon my brain—  
It was the carol of a bird;  
It ceased, and then it came again,  
The sweetest song ear ever heard,  
And mine was thankful till my eyes  
Ran over with the glad surprise,  
And they that moment could not see  
I was the mate of misery;  
But then, by dull degrees, came back  
My senses to their wonted track;  
I saw the dungeon walls and floor  
Close slowly round me as before,  
I saw a glimmer of the sun  
Creeping as it before had done,  
But through the crevice where it came  
That bird was perched, as fond and tame,  
And tamer than upon the tree;  
A lovely bird with azure wings,  
And song that said a thousand things,  
And seem'd to say them all to me!  
I never saw its like before,  
I ne'er shall see its likeness more;



It seem'd like me to want a mate,  
But was not half so desolate,  
And it was come to love me when  
None lived to love me so again,  
And cheering from my dungeon's brink,  
Had brought me back to feel and think.  
I know not if it late were free,  
Or broke its cage to perch on mine ;  
But knowing well captivity,  
Sweet bird ! I could not wish for thine !  
Or if it were, in winged guise,  
A visitant from Paradise ;  
For—Heaven forgive that thought ! the while  
Which made me both to weep and smile—  
I sometimes deem'd that it might be  
My brother's soul come down to me ;  
But then at last away it flew,  
And then 'twas mortal well I knew,  
For he would never thus have flown,  
And left me twice so doubly lone,  
Lone as the corse within its shroud,  
Lone as a solitary cloud—  
A single cloud on a sunny day,  
While all the rest of heaven is clear,  
A frown upon the atmosphere,  
That hath no business to appear  
When skies are blue, and earth is gay.

### THE OLD CLOCK ON THE STAIRS

We have often seen in reading through the CHILD'S BOOK OF POETRY how the poets have contrived to express in the music of words something of the sound and movement of actual life. Here, in this famous poem by Henry W. Longfellow, the writer takes a very familiar subject, and yet we find that he invests an old clock with mysterious and almost dramatic interest. Every little effect of his verse is carefully correct, and the stately, sober, unceasing swing of the pendulum is rendered in a most impressive way in the solemn refrain "For ever—never ! Never—for ever !"

SOMEWHAT back from the village street  
Stands the old-fashioned country seat.  
Across its antique portico  
Tall poplar-trees their shadows throw ;  
And from its station in the hall  
An ancient timepiece says to all :  
" For ever—never !  
Never—for ever ! "

By day its voice is low and light ;  
But in the silent dead of night,  
Distinct as a passing footstep's fall  
It echoes along the vacant hall,  
Along the ceiling, along the floor,  
And seems to say at each chamber door :  
" For ever—never !  
Never—for ever ! "

Through days of sorrow and of mirth,  
Through days of death and days of birth,  
Through every swift vicissitude  
Of changeful time, unchanged it has stood,  
And as if, like God, it all things saw,  
It calmly repeats those words of awe :  
" For ever—never !  
Never—for ever ! "

In that mansion used to be  
Free-hearted Hospitality ;  
His great fires up the chimney roared ;  
The stranger feasted at his board ;  
But, like the skeletons at the feast,  
That warning timepiece never ceased :  
" For ever—never !  
Never—for ever ! "

There groups of merry children played,  
There youths and maidens dreaming strayed ;  
Oh, precious hours ! Oh, golden prime,  
And affluence of love and time !  
Even as a miser counts his gold,  
Those hours the ancient timepiece told :  
" For ever—never !  
Never—for ever ! "

From that chamber, clothed in white,  
The bride came forth on her wedding night ;  
There, in that silent room below,  
The dead lay in his shroud of snow ;  
And in the hush that followed the prayer,  
Was heard the old clock on the stair :  
" For ever—never !  
Never—for ever ! "

All are scattered now and fled,  
Some are married some are dead ;  
And when I ask, with throbs of pain,  
" Ah, when shall they all meet again ? "  
As in the days long since gone by,  
The ancient timepiece makes reply :  
" For ever—never !  
Never—for ever ! "

Never here—for ever there,  
Where all parting, pain, and care,  
And death, and time shall disappear,  
For ever there, but never here !  
The horologe of Eternity  
Sayeth this incessantly :  
" For ever—never !  
Never—for ever ! "

### THE SPRING WALK

Thomas Miller, who wrote these simple verses descriptive of the pleasant sights and sounds that mark a country walk in the days of spring, was a very interesting character. Born at Gainsborough, in Lincolnshire, August 31, 1807, he was apprenticed to a basket-maker ; but having a real love of Nature and a desire to improve himself, he learned to read and write, and, some of his verses being seen by Rogers, the poet hanker, he was encouraged to come to London, where he lived for years as a bookseller and author, dying in 1874. "The Sun," on page 1401, is by the same poet.

WE had a pleasant walk to-day,  
Over the meadows and far away,  
Across the bridge by the water-mill,  
By the woodside, and up the hill ;  
And if you listen to what I say,  
I'll tell you what we saw to-day.

Amid a hedge, where the first leaves  
Were peeping from their sheaths so shy,  
We saw four eggs within a nest,  
And they were blue as the summer's sky.

An elder-branch dipp'd in the brook,  
We wondered why it moved, and found  
A silken-hair'd, smooth water-rat  
Nibbling and swimming round and round.

Where daisies open'd to the sun,  
In a broad meadow, green and white, "  
The lambs were racing eagerly—  
We never saw a prettier sight.

We saw upon the shady banks  
Long rows of golden flowers shine,  
And first mistook for buttercups  
The star-shaped yellow celandine.

Anemones and primroses,  
And the blue violets of spring,  
We found whilst listening by a hedge  
To hear a merry ploughman sing.

And from the earth the plough turn'd up  
There came a sweet refreshing smell,  
Such as the lily of the vale  
Sends forth from many a woodland dell.

We saw the yellow wallflower wave  
Upon a mouldering castle wall,  
And then we watched the busy rooks  
Among the ancient elm-trees tall.

And leaning from the old stone bridge,  
Below we saw our shadows lie,  
And through the gloomy arches watch'd  
The swift and fearless swallows fly.

We heard the speckle-breasted lark  
As it sang somewhere out of sight,  
And we tried to find it, but the sky  
Was fill'd with clouds of dazzling light.

We saw young rabbits near the wood,  
And heard a pheasant's wing go "whir ;"  
And then we saw a squirrel leap  
From an old oak-tree to a fir.

We came back by the village fields,  
A pleasant walk it was across 'em,  
For all behind the houses lay  
The orchards red and white with blossom.

Were I to tell you all we saw,  
I'm sure that it would take me hours ;  
For the whole landscape was alive  
With bees, and birds, and buds, and flowers.

### THE FAITHFUL BIRD

In this poem William Cowper is very probably describing an incident from his own experience with his pet birds. There is not much in the story he has to tell, and yet how pleasant it is to read, and how gently it conveys a little lesson to us which should make us entertain the kindest feelings for the "happy prisoners" of the cage.

THE greenhouse is my summer seat ;  
My shrubs, displaced from that retreat,  
Enjoy'd the open air ;  
Two goldfinches whose sprightly song  
Had been their mutual solace long  
Lived happy prisoners there.

They sang as blithe as finches sing  
That flutter loose on golden wing,  
And frolic where they list ;  
Strangers to liberty, 'tis true,  
But that delight they never knew,  
And therefore never miss'd.

But Nature works in every breast  
With force not easily suppress'd ;  
And Dick felt some desires,  
That, after many an effort vain,  
Instructed him at length to gain  
A pass between the wires.

The open windows seem'd to invite  
The freeman to a farewell flight ;  
But Tom was still confin'd ;  
And Dick, although his way was clear,  
Was much too generous and sincere  
To leave his friend behind.

So, settling on his cage, by play,  
And chirp, and kiss, he seem'd to say,  
You must not live alone—  
Nor would he quit that chosen stand  
Till I, with slow and cautious hand,  
Return'd him to his own.

### THE COUNCIL OF HORSES

John Gay, born at Barnstable in 1685, and died in London, December 4, 1732, was a poet who had much success in his own day, and although his works, as a whole, are now but little read, many of his songs and shorter poems have enduring merit. While best known as the author of the "Beggars' Opera," his "Fables" are perhaps the most quoted of all his writings, and of these we have selected the following example, which is very familiar in style and "moral."

UPON a time a neighing steed,  
Who graz'd among a numerous breed,  
With mutiny had fired the train,  
And spread dissension through the plain  
On matters that concern'd the state,  
The council met in grand debate.  
A colt whose eyeballs flamed with ire,  
Elate with strength and youthful fire,  
In haste stept forth before the rest,  
And thus the listening throng address'd :  
"Goodness, how abject is our race,  
Condemn'd to slavery and disgrace !  
Shall we our servitude retain,  
Because our sires have borne the chain ?  
Consider, friends, your strength and  
might ;

'Tis conquest to assert your right.  
How cumbrous is the gilded coach !  
The pride of man is our reproach.  
Were we design'd for daily toil,  
To drag the ploughshare through the soil,  
To sweat in harness through the road,  
To groan beneath the carrier's load ?  
How feeble are the two-legg'd kind !  
What force is in our nerves combin'd !  
Shall, then, our nobler jaws submit  
To foam and champ the galling bit ?  
Shall haughty man my back bestride ?  
Shall the sharp spur provoke my side ?  
Forbid it, heavens ! Reject the rein ;  
Your shame, your infamy, disdain.  
Let him the lion first control,  
And still the tiger's famish'd growl.  
Let us, like them, our freedom claim,  
And make him tremble at our name."  
A general nod approv'd the cause,  
And all the circle neigh'd applause.  
When, lo ! with grave and solemn pace,  
A steed advanc'd before the race,  
With age and long experience wise ;  
Around he cast his thoughtful eyes,  
And, to the murmurs of the train,  
Thus spoke the Nestor of the plain :  
"When I had health and strength like  
you,

The toils of servitude I knew ;  
Now grateful man rewards my pains,  
And gives me all these wide domains.  
At will I crop the year's increase ;  
My latter life is rest and peace.  
I grant, to man we lend our pains,  
And aid him to correct the plains ;  
But doth not he divide the care,  
Through all the labours of the year ?  
How many thousand structures rise,  
To fence us from inclement skies !  
For us he bears the sultry day,  
And stores up all our winter's hay.  
He sows, he reaps the harvest's gain ;  
We share the toil and share the grain ;  
Since every creature was decreed  
To aid each other's mutual need,  
Appease your discontented mind,  
And act the part by Heaven assign'd."  
The tumult ceas'd, the colt submitted,  
And, like his ancestors, was bitted.

# THE WIND AND THE MOON

Dr. George Macdonald, to whose rich fancy we owe this charming poem, wrote many fine novels. We could almost guess from reading the following that he could write a pretty fairy tale, and he really did write many delightful stories of fairyland. He was a remarkable preacher, and altogether a man of very original mind. Born at Huntly, Aberdeenshire, in 1824, he died in Italy on September 18, 1905.

**S**AID the Wind to the Moon, "I will blow you out !

You stare

In the air

As if crying 'Beware !'

Always looking what I am about.

I hate to be watched ! I will blow you out ! "

The Wind blew hard, and out went the Moon.

So, deep

On a heap

Of clouds, to sleep

Down lay the Wind, and slumbered soon,

Muttering low, "I've done for that Moon ! "

He turned in his bed : she was there again !

On high

In the sky,

With her one ghost-eye,

The Moon shone white and alive and plain.

Said the Wind, "I will blow you out again ! "

The Wind blew hard, and the Moon grew slim.

"With my sledge

And my wedge

I have knocked off her edge !

I will blow," said the Wind, "right fierce and

grim,

And the creature will soon be slimmer than slim ! "

He blew and he blew, and she thinned to a thread.

"One puff

More's enough

To blow her to snuff !

One good puff more where the last was bred,  
And glimmer, glimmer, glum will go that thread ! "

He blew a great blast, and the thread was gone.

In the air

Nowhere

Was a moonbeam bare :

Larger and nearer the shy stars shone :

Sure and certain the Moon was gone !

The Wind he took to his revels once more ;

On down

And in town,

A merry, mad clown,

He leaped and holloed with whistle and roar—

When there was a glimmering thread once more !

He flew in a rage—he danced and blew ;

But in vain

Was the pain

Of his bursting brain,

For still the Moon-scrap the broader grew

The more that he swelled his big cheek and blew.

Slowly she grew—till she filled the night,

And shone

On her throne

In the sky alone,

A matchless, wonderful, silvery light,

Radiant and lovely, the queen of the night.

Said the Wind, "What a marvel of power am I !

With my breath,

In good faith,

I blew her to death !

First blew her away right out of the sky,

Then blew her in : what a strength am I ! "

But the Moon she knew naught of the silly affair ;

For high

In the sky,

With her one white eye,

Motionless miles above the air,

She never had heard the Wind blare.

## THE BEST SCHOOL OF ALL

There is, of course, but one "best school," and that is the one at which each of us has been a scholar. Our own old school, no matter what others may think of theirs, is to us "the best school of all." Mr. Henry Newbolt, one of the finest living poets, in these ringing and vigorous verses celebrates with the true touch of boyish patriotism the memory of all our schooldays. One would be sorry for the "old boy" who could not sing this fine song and feel it to be true, for he would have missed one of the real pleasures of life. It is here reprinted by special permission of Mr. Newbolt.

**I**t's good to see the school we knew,

The land of youth and dream,

To greet again the rule we knew

Before we took the stream :

Though long we've missed the sight of her,

Our hearts may not forget ;

We've lost the old delight of her,

We keep her honour yet.

*We'll honour yet the school we knew,*

*The best school of all :*

*We'll honour yet the rule we knew,*

*Till the last bell call.*

*For, working days or holidays,*

*And glad or melancholy days,*

*They were great days and jolly days*

*At the best school of all.*

The stars and sounding vanities

That half the crowd bewitch,

What are they but inanities

To him that treads the pitch ?

And where's the wealth, I'm wondering,

Could buy the cheers that roll,

When the last charge goes thundering

Beneath the twilight goal ?

The man that tanned the hide of us,

Our daily foes and friends,

They shall not lose their pride of us

Howe'er the journey ends.

Their voice, to us who sing of it,

No more its message bears,

But the round world shall ring of it

And all we are be theirs.

To speak of Fame a venture is,

There's little here can bide,

But we may face the centuries,

And dare the deepening tide :

For though the dust that's part of us

To dust again be gone,

Yet here shall beat the heart of us—

The school we handed on !

*We'll honour yet the school we knew,*

*The best school of all :*

*We'll honour yet the rule we knew,*

*Till the last bell call.*

*For, working days or holidays,*

*And glad or melancholy days,*

*They were great days and jolly days*

*At the best school of all.*

# The Child's Book of SCHOOL LESSONS



READING CLUB

## THE DIFFERENT KINDS OF PRONOUNS

WE left off our last lesson at the point where the Pronouns HE, SHE, IT were invited out to tea, and, I am sorry to say, behaved rather rudely. But these are not the only Pronouns, so they need not get conceited.

Now, suppose mother takes you one afternoon to the ZOO to see the animals there; and suppose you are in the place where the LIONS are kept; and suppose it is just feeding-time, and you are watching one great lion eating his dinner; and suppose you turned to mother and said, "Oh, I say, mother, don't YOU think HE is a beauty?" What would you have been doing? You would have been using a sentence with three different Pronouns in it. When you are talking about yourself, you say I; when you are talking to your mother, you say YOU; and when you point to the lion and talk about him, you say HE. And these are three different persons: (1) yourself, (2) mother, (3) the



lion. We will be very polite, and call the lion a person, so that if ever we meet him out in the street we can tell him that we always treated him with great respect, and then, perhaps, he will not hurt us.

Now, there is a different Pronoun for each of the three persons: I is the Pronoun used by the person

speaking when he is speaking about himself; YOU is the Pronoun of the person spoken to; and HE is the Pronoun of the person spoken about. And these are called the First Person, the Second Person, and the Third Person. So we

can draw up a little plan like this:

### PRONOUNS

|            |            |            |
|------------|------------|------------|
| 1st Person | 2nd Person | 3rd Person |
| I          | YOU        | HE         |

But we learned before, on page 1447, that there were two kinds of people and animals—males and females; so when we talk about a male person or animal we say HE, but when we

talk about a female we say SHE. If you were telling me a story about a girl, you would not say HE, but SHE ; and you would not begin a history lesson about King John by saying, "Now, as to King John, SHE was a very bad man." Everybody would laugh at you if you did, and no wonder. Once more, if you were talking about a thing instead of a person, you would say IT ; you would say, "I don't like this pen; IT won't write." You would not say, "SHE won't write." So our plan can now grow a little bigger :

|            |            |             |
|------------|------------|-------------|
| 1st Person | 2nd Person | 3rd Person  |
| I          | YOU        | HE, SHE, IT |

But suppose there were two of you, you and your brother, and you had been to the circus ; what would you say when father asked you, "Well, how did you both enjoy yourselves ?"

You would not say, "I enjoyed it very much," for that would not mean both of you ; so you would have to say, "WE enjoyed it very much."

And if you were talking about two lions, or three men, or four tables, you would say THEY, wouldn't you ? So our plan grows bigger still :

|                         |                |
|-------------------------|----------------|
| 1st Person              |                |
| Singular<br>I           | Plural<br>WE   |
| 2nd Person              |                |
| Singular<br>YOU         | Plural<br>YOU  |
| 3rd Person              |                |
| Singular<br>HE, SHE, IT | Plural<br>THEY |

We sometimes use THOU for the Singular of the Second Person, but not often, except in our prayers to God.

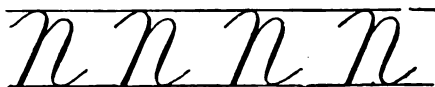
Here are some of the Pronouns in a funny rhyme :

I like my porridge very hot,  
But YOU prefer yours cold ;  
HE is a baby in a cot,  
But SHE is very old.  
IT eats its breakfast on its head,  
But THEY like theirs best in bed.

## WRITING

### CAPITAL M, N, S, L AND D

"WE are now going to see how to make N and M, your letter and mine, Nora ; but these are capital letters," said her mother at the next writing lesson. "There are two ways of making them ; we will learn the usual one first. There is N. What do you think of your letter, Nora ?"



Nora noticed that the first pot-hook was twice the height of little n, but the second pot-hook ending in the pot-hanger was not so high as the first. Her mother said now Nora would be able to write her name quite the right way, beginning with a capital N.

"Perhaps M makes its capital in the same way. Does it, mother ?" asked Tom.

"See if you can make one," was the reply.

Tom took his pencil, looked at N, made a little m, and then wrote a small m very big, like n in three parts instead of two. He made the last two pot-hooks the same height as one another.

"Nearly right !" exclaimed his mother. "Now watch me write M, and see where yours is different."



Tom saw at once that all three of the pot-hooks were of different height, none alike ; and Nora said it reminded her of a staircase, and that it would be easy to distinguish her own letter from her mother's, because the M was grown up and bigger than N.

"Another time you shall learn the other capital N and M ; but to-day capital S is waiting its turn. Here it is," said the mother, as she wrote it.



Nora and Tom looked at it, and noticed how very like a little s it was, really s with a big loop at the top.

"That loop," said their mother, "reminds us of the loop of string they tie on to parcels in the shops to help us carry them. S begins the word swing. That will remind us."

"Tom swings them on his forefinger, when he carries them for us," said Nora. "So you will remember capital S, Tom."

When the children had written S, they were shown another capital letter.



"Mother, I thought you were going to make S again," said Nora ; "but you did not begin the long up-stroke quite so far down as with S."

"But the L ends quite differently," replied her mother. "Instead of the down-stroke turning round to the left and ending in a dot, it makes a loop, and the pencil comes down to touch the line again on the other side of the down-stroke, and turns up at the end ; so, you see, L has two loops. I has one loop, but L has two loops."

The next letter to be written was D.



"D needs care in making," the children were warned. "Other letters

have parts like it. The down-stroke ends like the lower loop of L, and the pencil touches the line again on the other side of it ; it then goes right up and round, passes the top of the down-stroke, makes a half-circle round to the left, and ends near the down-stroke. Look well at the letter before copying it."

Tom and Nora found D wanted more care to write nicely than any letter they had yet made, but they persevered till their D's were good and even, and then they were shown how to write the remaining capital letter, Q.

"Here is Q," said their mother, as she wrote it like this :



"It starts with a big curved down-stroke, reaching below the upper line, turns up and round to the right, and the down-stroke ends exactly like L's. It is only the upper part that is new to us, and the letter is very much like a giant 2, with a loop."

In our next lesson we shall learn something quite new—how to make figures.

## ARITHMETIC

### MULTIPLYING BIG NUMBERS TOGETHER

IN our last lesson we saw how to find the value of ten times a given number. We have only to move each figure from its own place into the next place on the left. This leaves us with no figure for the unit's place, so that we must put a 0 into it. Thus, the number 34, when multiplied by 10, gave us 340.

Now, it is clear that if we take 10 times 34, and add to it another 10 times 34, we shall then have 20 times 34. In other words, to find 20 times a given number, we must not only move each figure from its own place to the next place on the left, but we must also double each figure.

Thus, to arrange our work on paper, we place the multiplier, 20, under the 34, so that the 0 comes one place to the right of the unit's place in the multiplicand (as we call the number to be multiplied). Then, since we have to double the 34, we say : Twice 4

are 8, twice 3 are 6. We have for the answer 68. As we have multiplied only by 2, and not by 2 tens, or 20, you see at once that the answer is ten times too small. To make it right, bring down the 0 to the unit's place, which moves each figure one place to the left, and therefore multiplies the number by ten, giving the correct answer 680.

Now that we understand *why* we do this, we may just as well write the 0 in the unit's place *first*, and then multiply the number by 2, setting down the figures of the result to left of the 0.

How much is 20 times 1728 ?

As before, write the multiplier, 20, so that its 0 is below and to the right of the unit's figure of the 1728.

Then, first, put 0 into the unit's place ; next twice 8, 16, put down 6, carry 1 ; twice 2, 4, and 1, 5, put down 5 ; twice 7, 14, put down 4, carry 1 ; twice 1, 2, and 1, 3.

1728  
20  
—  
34560



It is evident that we multiply by 30, 40, 50, and so on, in the same way. For example, to find 70 times 234, we have this:

$$\begin{array}{r} 234 \\ 70 \\ \hline \end{array}$$

Put 0 in the unit's place.  
Multiply 234 by 7.

16380

This leads us to the multiplication by 100. If we followed the same rule, we should first have 0 in the unit's place, and then 10 times the number on the left of this 0. But to get 10 times the number we simply have to write a 0 after it. Thus, our answer consists of the given number *with the two 0's after it*.

So, to multiply a number by 100, write 00 after it.

Another way of seeing the same thing is this. Take the number 34 as an example. We want each figure to be 100 times its present value. Therefore, 4 units become 4 hundreds, and 3 tens become 3 thousands; so we must have a 3 in the thousand's place, a 4 in the hundred's place, and fill in the tens and units with 0's.

We now come to the method of multiplying by any other number consisting of two figures.

Suppose we have to find the value of 43 times 126.

It is quite evident that if we first write 126 *three* times, and add, and then write it *forty* times and add, we shall, by adding these two results together, obtain forty-three times 126. That is what we actually do, the work being arranged in the following way:

$$\begin{array}{r} 126 \\ 43 \\ \hline 378 = 3 \text{ times } 126 \\ 504 = 40 \text{ times } 126 \\ \hline 5418 = 43 \text{ times } 126 \end{array}$$

Write the multiplier, 43, with its unit's figure, 3, under the unit's figure, 6, of 126. First, multiplying 126 by 3, we get 378. Then, multiplying 126 by 40, we get 504 *tens*. Placing them in columns as we have learned to do, and adding them, we have 5418, which is 43 times 126.

Let us look carefully at one or two things in working this problem. When we multiply by 3, we say, 3 times 6 units equal 18 units—that is, 1 ten and 8 *units*. We put the 8 into the unit's place and carry the 1 ten. Three times 2 tens are 6, plus 1 ten carried are 7 tens, the 7 to be in the ten's place. Three times 1

hundred are 3 hundred, the 3 to be in the hundred's place.

Next, we must multiply 126 by 4, which makes 504; but, as we have really multiplied by 4 *tens*, each figure must be moved one place to the left, so that 4 will be in the ten's place, under the 7, the 0 in the hundred's place, under the 3, and the 5 in the thousand's place. You can see that an 0 is understood in the unit's place, but is not necessary, as the position of the figures in columns has already given each its value.

Notice, also, that in both lines of our multiplication we *write the first figure of our result under the figure by which we are multiplying*. The work is done as follows:

$$\begin{array}{r} 126 \\ 43 \\ \hline 378 \\ 504 \\ \hline 5418 \end{array}$$

4 sixes, 24; put down 4 under the 4 by which we multiply, carry 2. 4 twos 8, and 2, 10; put down 0, carry 1. 4 ones, 4, and 1, 5. Next, 3 sixes, 18; put down 8 under the 3 by which we multiplied, carry 1. 3 twos, 6, and 1, 7. 3 ones, 3. Add 378 and 504(0) = 5418.

This method may be used in multiplying by numbers of any size, unless one 0, or more, occurs in the multiplier. Let us see what can be done in such a case. Multiply 126 by 403.

$$\begin{array}{r} 126 \\ 403 \\ \hline 378 \\ 504 \\ \hline 50778 \end{array}$$

Multiplying by 3 units we have 378. There are *no tens* by which to multiply, so we must leave that for the present. Next, multiply 126 by 4, as we have learned to do, and we have 504. As we have really multiplied by 4 hundreds (400), each figure must be moved 2 places to the left, as there are 2 zeros in 400, and as the 4 *must* be put under the 4 of the multiplier. Adding the results, we have the answer 50778.

If you will compare this answer with that obtained when we multiplied 126 by 43, you will see that, although we could not multiply by 0, we really had to keep a place for it in the ten's column, and so we may as well put it there.

#### ANSWERS TO EXAMPLES ON PAGE 2892.

1. 1524 plants.    2. 2056 lines.
3. 418 pennies.
4. Sixty-four thousand eight hundred and eighty-one.    5. 1701 marbles.

## THE BEAUTIFUL LAND OF SOUND

WE have had such happy times with our little fairies, and have been so pleased with the kind goblins, that I am sure we are quite ready to go a little farther, and find out how we can make their beautiful secrets our own.

We must learn to know all the different ways of touching the notes, and many other things besides. We must know what to do when we want to hear soft, singing voices. If we would hear the wings of the wind—for fairies and goblins love the great storm spirit—we

in the beauty of the story which the fairies have taught us.

Once upon a time there was a very great man, who knew the wonderful language of the music fairies so well that his name will never die. He wrote deep, glorious music, which one day you and I will enjoy. His name was Beethoven, and if we want to understand and to learn from him, we must know what it is to listen to the songs in the trees, to hear the fairy music in the rippling stream, and to see the wee folk flying



THE BEAUTIFUL LAND OF SOUND BEHIND THE STONE WALL

must learn the secret of quite a different way of approaching the notes. When an artist paints a picture, he does not try to manage with one brush; he has need of many. There are the large, bold effects which need big brushes; there are the dainty little details requiring the lightest treatment, such as no big brush could ever give.

So it is with our magic kingdom, the piano; if only we take the trouble to find the right brushes the secrets will come to us, and, when we play, those who listen will lose themselves

by in the fleeting white clouds. The great Beethoven loved country rambles; he was always happy when he was with dear Mother Nature, and she taught him songs. The fairies are keeping these wonderful songs for us—songs that will never die.

Many of these beautiful themes came to him while he sat under a tree, and he scribbled them down then and there, so that his wonder dreams should be shared by all the children of earth. He has given us stories of lightning and thunder; sometimes his music shows us the

story of the sunset, or he takes us into the quiet, and we feel he is telling us of peaceful summer skies. Yes, he has left us every sort of song that mortal ear can hear, and if we want to conjure up these stories for ourselves, if we want the piano fairies to help us, we have much to learn.

There are many little exercises which will do great things for us, if we learn them carefully; and if we begin to wonder why such funny things are necessary, we must remember how many beautiful stories are waiting for us, if only we have the patience to learn how to discover all they have to say.

Quite the best, and yet the most difficult thing of all, is to play a simple melody. The piano must really *sing*. Through all the interesting work we are going to do together, that one idea must be our king of thoughts—the piano must *sing*. We must listen very carefully to each tone to be quite sure that we are treating all the fairies equally well. We have a king of thoughts, and now we have found the queen, and as we want to remember both of them, we must say them over again to ourselves.

*We must learn how to make the piano sing. We must never touch a note without listening to it.*

Why are we talking like this before doing one single exercise? Well, this wonderful world of music is an enchanted land, and its many gates can be opened even by us, although it is possible for them to remain fast locked. It all depends on whether we know the right keys.

We shall have to think very much about our fingers, a great deal about our hand, and our arm will need much thought, too; but all that is only the means to the end. We are like travellers in a new country, and we come to a high stone wall. Some people think only of the stones, but we have heard that there is a glorious treasure inside, and we are eager to find it as quickly as possible. See, between the stones there is a chink, which shows a glimpse of the light within. So, while we work away at the stones—that is, while we do our exercises with all our will and best endeavour—let us never forget that the object of our working is to get through the chink into the treasure-house where so much beauty is waiting for us.

## DRAWING

### MEASURING THINGS FROM A DISTANCE

THE box we drew some time ago was placed in front of us—just opposite, and below the eye. Let us see if we can draw it in another position—a little to the left, and still below the eye. When we drew the flat sheet of paper, and learned how to draw the book, we found that the side-lines slanted away from us towards the point immediately opposite us, and as far away as we could see when we looked straight in front of us.

We can understand a little better about these lines if we look at a straight road leading away from us, or at straight railway lines. The road seems to get narrower in the distance, and the railway lines to run closer together. Standing at one end of a room, and looking at the opposite end, we see the floor lines slanting up, and the ceiling lines down towards our own eye-level. Tall men and women see more than short ones, or than little

children, and people standing on heights see more than those on the level ground.

So we see that our drawings must be of objects as *we* see them ourselves. The sketches of the boxes on this page will help us to draw some from our own view, but nobody else's drawing will show quite the same view as ours; so we must make our own drawing, and not copy other people's.

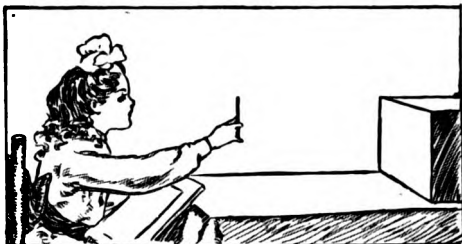
Shall we put our box a little on the right-hand side, so that we see the top and one side? We will draw it in black and white chalk on brown paper, beginning with the side nearest to us. If the box is square, the side will not look quite square, for shapes alter if they are moved sideways from the eye, as they do, too, when moved nearer or further in an opposite direction. But we must be careful not to exaggerate this alteration of shape; and to prevent our doing this, there is a way of measuring lines at a distance

which is very useful. It is always rather difficult to learn new ways; but after a little practice we shall find that this one is quite worth the trouble.

in proportion to its height, or how big one thing is in proportion to another. We shall be able by-and-by to get the proper proportion of big



How to hold the pencil for the top line



How to hold the pencil for the side line

We shall want a long pencil—or a ruler even. We must sit quite straight, and hold the pencil at arm's length, and keep one eye tightly shut. The pencil must be held in a horizontal position, one end hiding one top corner of the box from our view. With the forefinger of the other hand we mark where the other corner is, on the pencil. Let us rest a little now, taking care not to lose the measurement we have made on the pencil—we can hold it at that place with the right hand till we are ready to shut one eye again.

Now, still keeping the fingers of the right hand on the first measurement, and holding the pencil upright at arm's length against one of the edges of the front side of the box, we can find out if the top or the side edge seems longer, by seeing if the part we measured in the horizontal position of the pencil is bigger or smaller than the part we measured when we held it upright. This way of measuring seems rather tiresome at first, but all artists find they must use it to get the proportion of things—that is, how wide or how narrow anything is

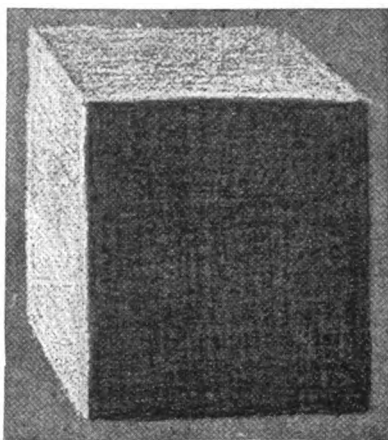
things at a distance, like ships or buildings. People who cannot use this sort of measurement sometimes draw cows as big as churches, and men and

women as big as the houses in the same picture.

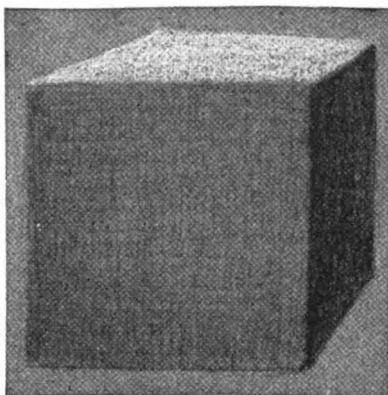
One thing we have to remember, though, is that we do not measure the actual size of anything in this way—only the *proportion* of one part to another. We choose for ourselves how big to draw the things according to the size we want our picture to be.

Now we will try to draw the box, using all the things we have learned to help us. Lines furthest from the eye slant most, so the lowest lines slant up the most. Those further to the right or left slant more than those nearer. The top of the box would look narrower than the bottom if we could see both, because it is higher, and therefore nearer the eye-level. In putting in shading we must not show

the chalk outline, because we do not see it in the real box. The outlines of objects have no black lines round them. They are shown by difference of light and shade.



The right-hand view of a box



Here is a left-hand view of another box

## LITTLE PICTURE-STORIES IN FRENCH

First line: French. Second line: English words. Third line: As we say it in English.

Il est dix heures et demie. Quelqu'un frappe à la porte. La bonne l'ouvre.  
*It is ten hours and half. Someone knocks at the door. The maid it opens.*  
 It is half-past ten o'clock. Someone knocks at the door. The maid opens it.  
 C'est le facteur. Il a apporté un télégramme à Papa. Papa le lit vite.  
*This is the postman. He has brought a telegram to Papa. Papa it reads quickly.*  
 It is the postman. He has brought Papa a telegram. Papa reads it quickly.  
 Papa dit qu'il doit aller à Londres pour affaire pendant quelque temps.  
*Papa says that he must to go to London for business during some time.*  
 Papa says that he must go to London on business for a little while.



Maman et la bonne cherchent un portemanteau. Elles le remplissent d'habits.  
*Mamma and the nurse look for a portmanteau. They it fill with clothes.*  
 Mamma and Nurse look for a portmanteau. They fill it with clothes.  
 Elles ferment le portemanteau et elles tournent la clef. Papa entre.  
*They shut the portmanteau and they turn the key. Papa enters.*  
 They shut the portmanteau and turn the key. Papa comes in.  
 Il veut mettre un livre dans le portemanteau pour le lire en route.  
*He wishes to put a book into the portmanteau for it to read in route.*  
 He wants to put a book in his portmanteau to read on the way.  
 "Où est la clef?" demande Papa. Nous ne pouvons pas la trouver.  
*"Where is the key?" demands Papa. We (not) are able not it to find.*  
 "Where is the key?" asks Papa. We cannot find it.



Il faut qu'il arrive à temps pour le train, et il se fait tard.  
*It is necessary that he arrives at time for the train, and it itself makes late.*  
 He must be in time for the train, and it is getting late.  
 Nous cherchons sur la table, sur le plancher, et sous le sofa. Elle est perdue.  
*We search on the table, on the floor, and under the sofa. It is lost.*  
 We search on the table, on the floor, and under the sofa. It is lost.  
 Puis la bonne crie: "La méchante!" La clef est dans la bouche de Bébé!  
*Then the nurse cries: "The naughty one!" The key is in the mouth of Baby!*  
 Then Nurse cries: "Naughty child!" The key is in Baby's mouth!

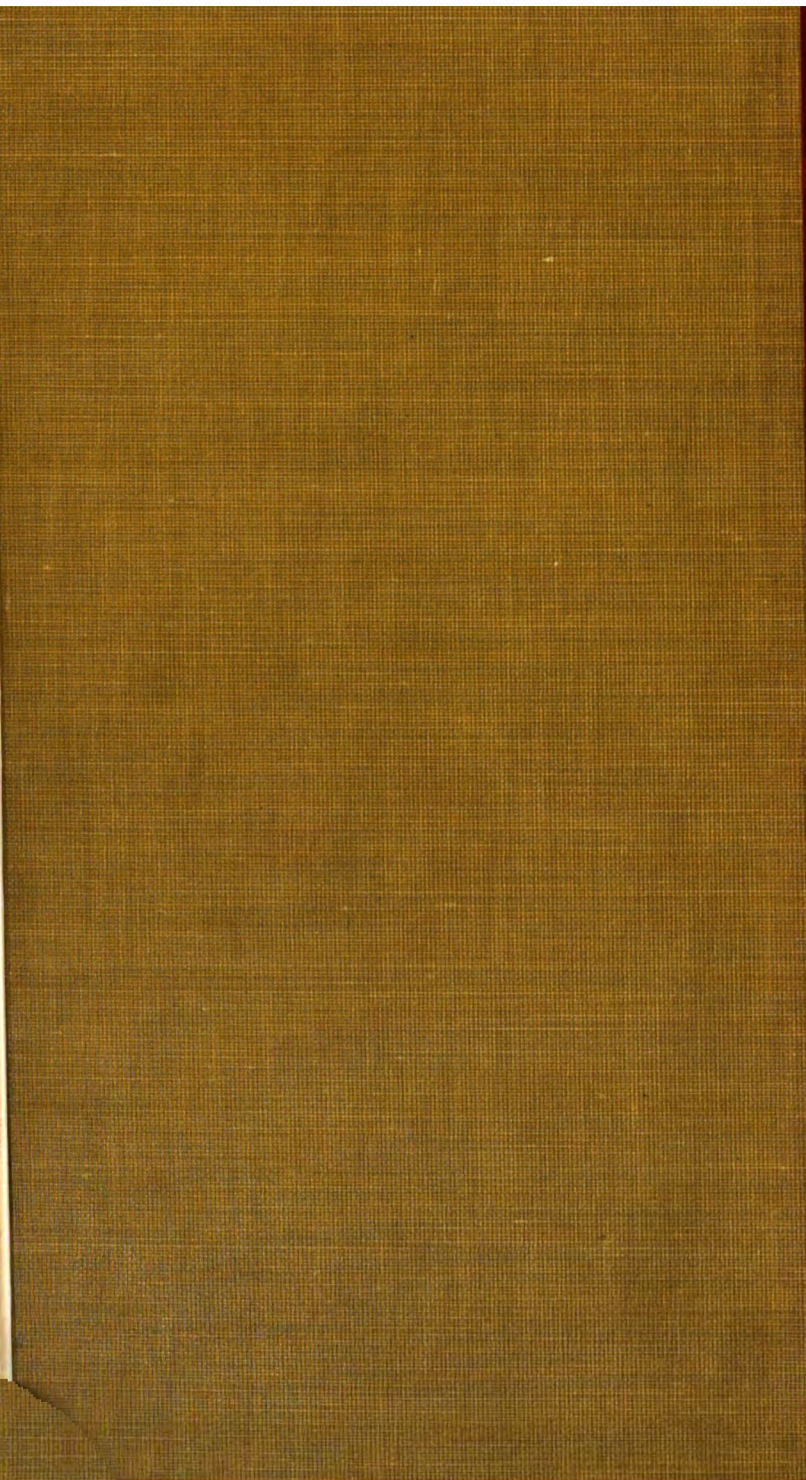
THE NEXT LESSONS ARE ON PAGE 3287





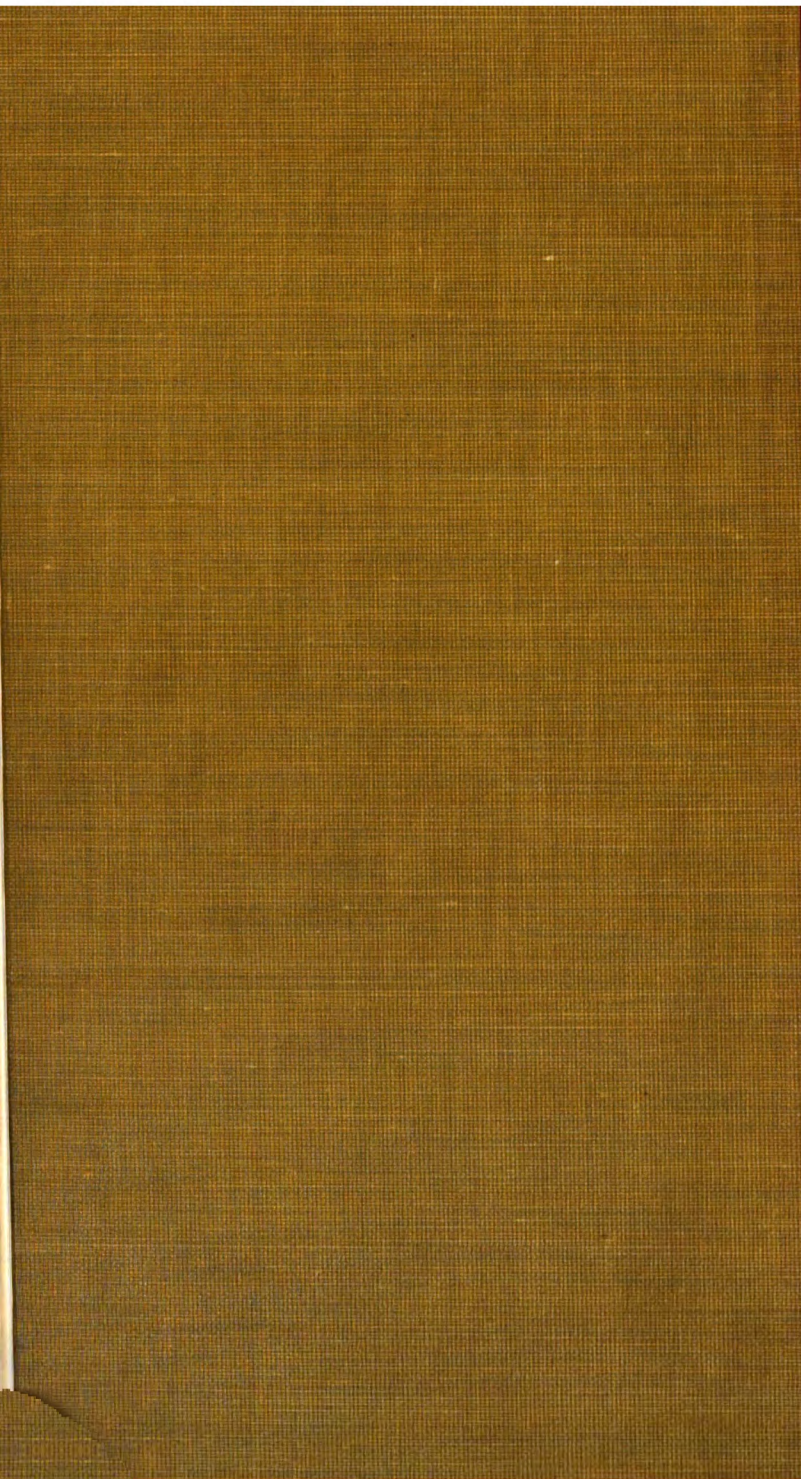


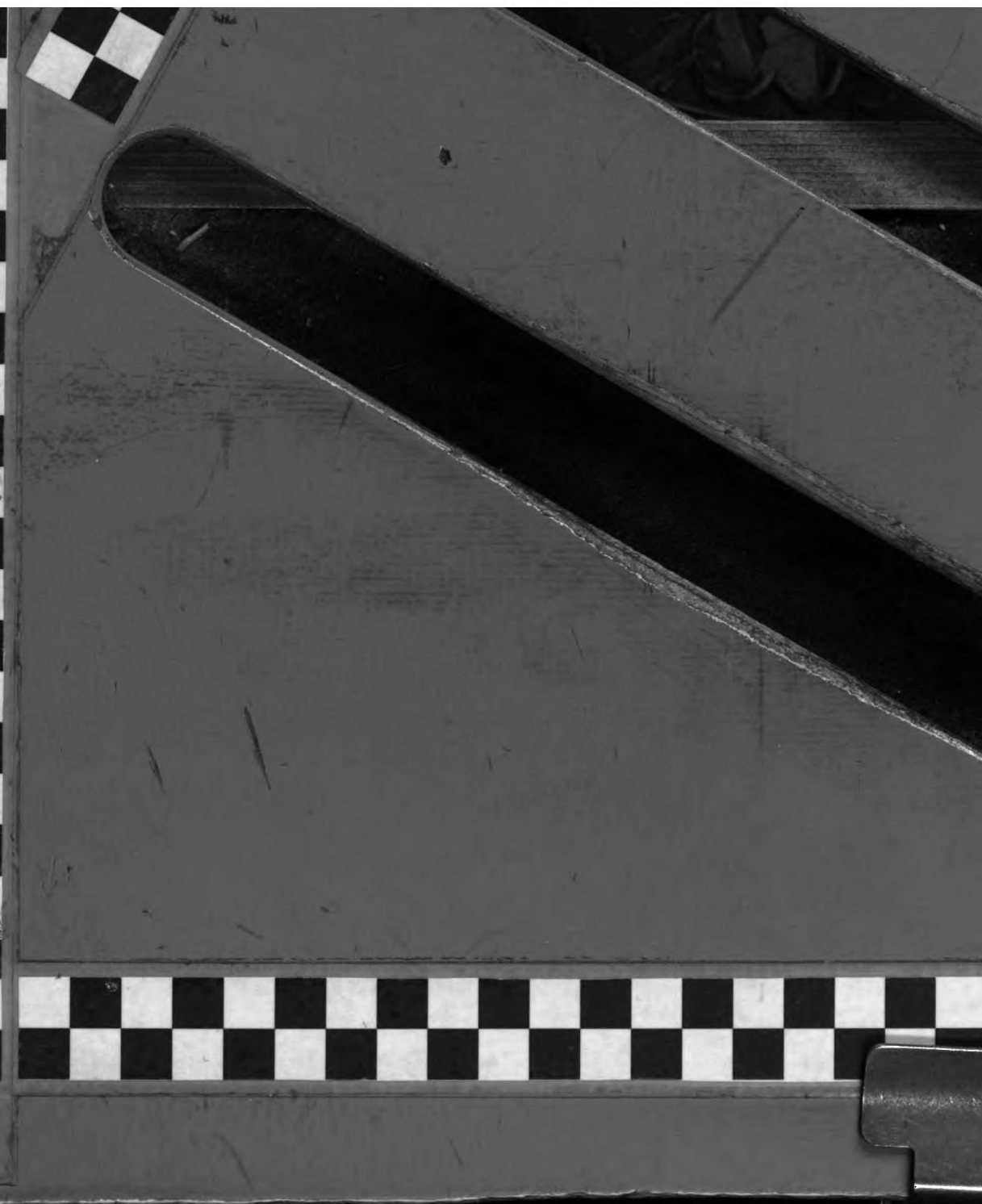














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